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PLANNING AREA ANALYSIS

SONOMA-GERLACH RESOURCE AREA

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

WINNEMUCCA DISTRICT, NEVADA

Prepared By:

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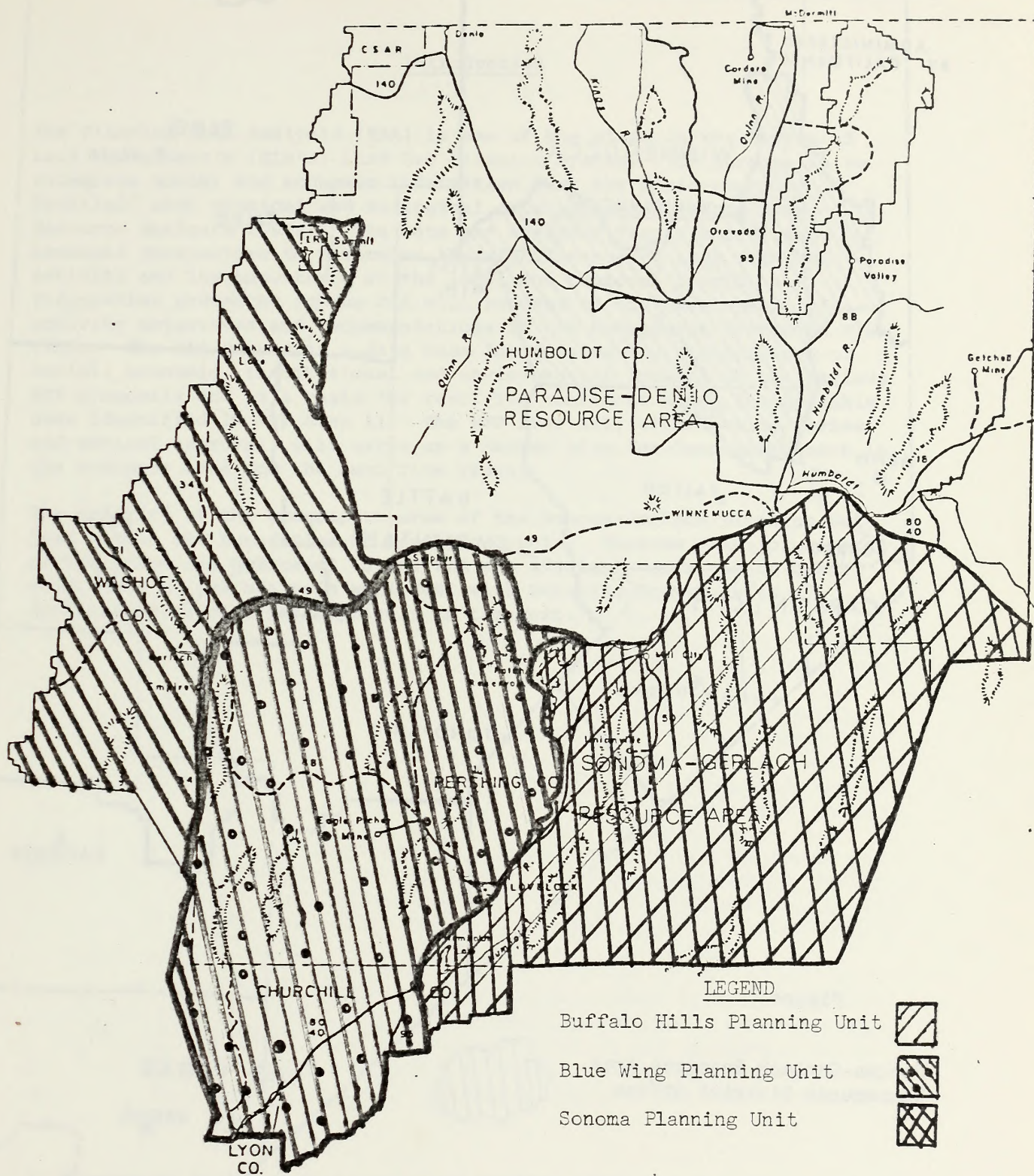
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WINNEMUCCA DISTRICT SONOMA-GERLACH RESOURCE AREA

Figure 1

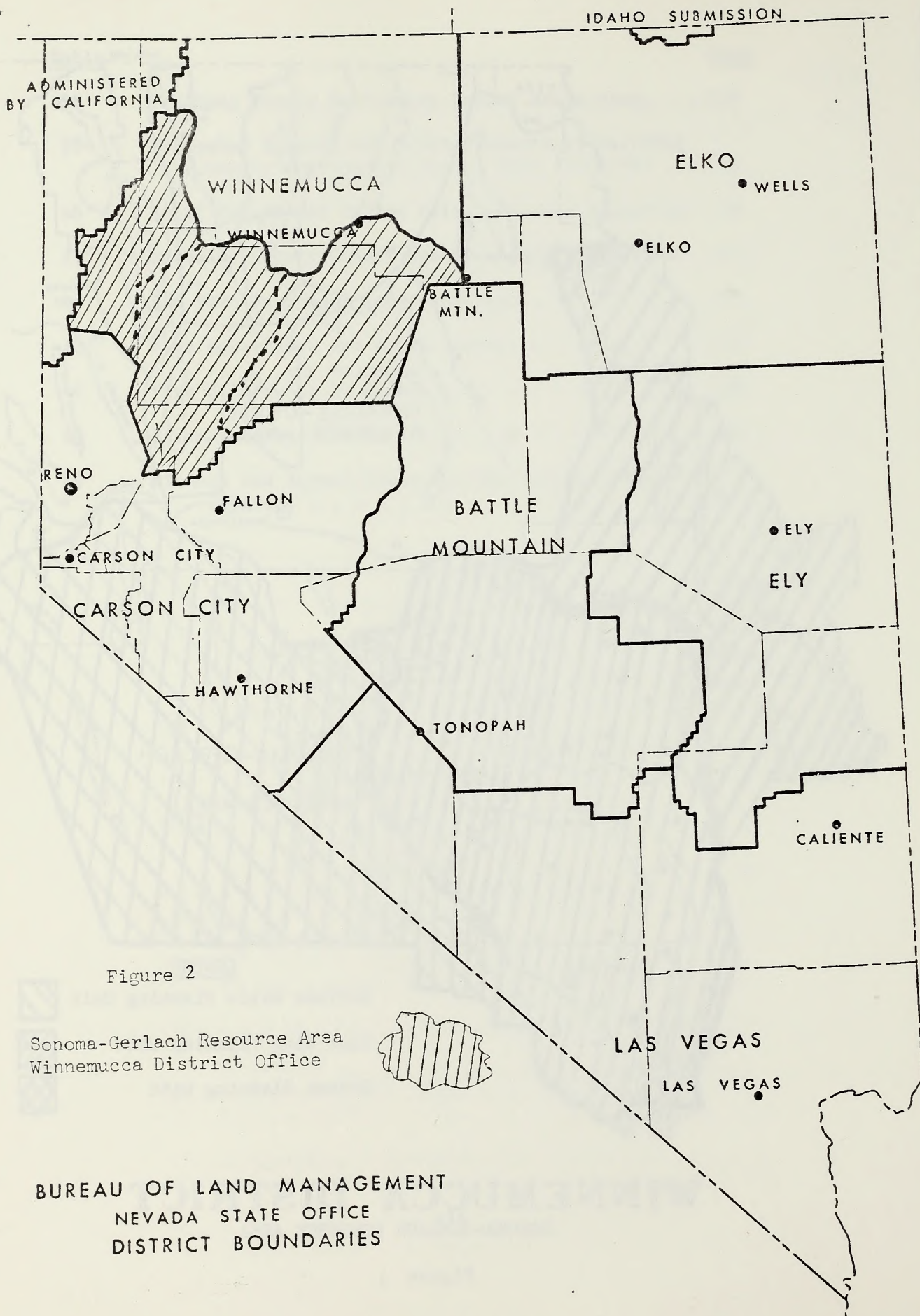


Figure 2

Sonoma-Gerlach Resource Area
Winnemucca District Office

BUREAU OF LAND MANAGEMENT
NEVADA STATE OFFICE
DISTRICT BOUNDARIES

Introduction

The Planning Area Analysis (PAA) is one of the steps in the Bureau of Land Management's (BLM's) Land Use Planning System. Its purpose is to integrate social and economic information from the Socio-economic Profile^{1/} with physical and biological data presented in the Unit Resource Analysis (URAs). The data are analyzed from a social and economic perspective to determine the significance of each resource activity and its importance at the local and regional levels. Information presented in the PAA will be used in the development of activity objectives and recommendations in the Management Framework Plan (MFP). The PAA serves as a data base for judging the significance of social, economic, institutional and environmental impacts of the various MFP proposals and as a basis for resolving conflicts among incompatible uses identified in MFP Step II. The MFP Step III, after public review and official approval, will serve as a master plan for land management in the resource area for the next five years.

The majority of the geographic area of the Sonoma-Gerlach Planning Unit lies within the boundaries of Pershing County. Because data for several of the resources discussed in the PAA are available on a county basis only, much of the analysis will deal with Pershing County, with differences handled descriptively in the text.

^{1/} Winnemucca District Socio-economic Profile (SEP) for the Winnemucca District was completed in 1976. Some of the material that appears in the PAA is an update of that found in the SEP.

Background and Social Values Analysis

Pershing County

The Humboldt River basin which runs through the Sonoma-Gerlach Resource Area was used by westbound settlers from the 1840s through the 1860s. The Big Meadow, as the area surrounding the present town of Lovelock was called, served as an oasis to the pioneers because of the tall grass and the water of the Humboldt River.

The first permanent settlement at Lovelock started in 1861 when some emigrants stayed in the valley to raise grass and grains for wagon trains and for the draft animals pulling freight wagons to and from the mines in the surrounding mountains.

Several stage lines operated in northern Nevada from the 1860s on, and the site of Lovelock was a stopover for many lines, both north-south and east-west. Lovelock's name came from a George Lovelock who ran a stage station there for a time. In the 1860s the transcontinental railroad was completed through Lovelock, bringing more people and providing a faster and cheaper way to ship out mineral and agricultural products.

Other towns in Pershing County grew faster and larger than Lovelock, but none have survived as well. Traces of several of the old mining towns, such as Unionville, may be found today. Imlay and Mill City are still inhabited communities, mostly because of the nearby Interstate Highway, but others have almost vanished.

Oreana in the 1870s was the largest town on the Humboldt River and boasted a race track and regular horse races. From the 1860s into the 1890s mining was Pershing County's leading industry, but then agriculture became the county's economic mainstay and is still in 1980 its most important industry.

The first attempts at using water from the Humboldt River began in the 1860s. Many ditches and dams were built and used temporarily before the Bureau of Reclamation built the Rye Patch Reservoir in 1936. (The historical information comes from the Reconnaissance Reports.)

Today almost 40,000 acres of land use water from the reservoir. The administration is handled by the Pershing County Water District, an elected board. The Bureau of Reclamation still owns the land and recently expanded the reservoir's capacity. The water district board allocates the irrigation water each year, depending on the amount of available water and the user's acreage.

Agriculture is the most important industry in Pershing County, with mining second, and tourism third. According to the Pershing County Commissioners tourism was about 35% less in 1979 than in 1978.

The drop in tourism, along with the possibility of wilderness areas in the county, worries the Lovelock businessmen. They fear that the closing of wilderness area roads to vehicular traffic will keep too many people away from their tourist attractions, e.g., the Applegate-Lassen trail. However, the Winnemucca District Wilderness Specialist said that very few roads and no known tourist attractions exist in the proposed wilderness study areas. The Applegate-Lassen trail is on the edge of a proposed wilderness study area, but can be seen from a vehicle at the edge of the area so the tourist trade of Pershing County should not be affected. A majority of visitors to Nevada State Parks are Nevadans -- 60% of the 2.2 million visitors in 1977 were state residents. Another 23% were Californians (Nevada State Abstract).

Populations and often the prosperity of these areas vary with these cyclic changes in mining. Lovelock has been through four cycles of increase-decrease in size in the past 50 years.

On the questionnaires from the Governor's Commission on the future of Nevada (hereafter referred to as 'the questionnaire'), 72% of Pershing County people agreed that growth for their community is beneficial, compared to 41% agreement in the state as a whole.

In the early 1970s two mines closed and the loss of jobs and people forced the closing of a casino and the movie theater in Lovelock. One local resident estimated that between 300 and 400 people left town in just a few months.

At the present time Lovelock is in a slump. A school bond passed in 1979 to build a replacement school is costing the local government more than expected because the State of Nevada is not contributing as much money as was expected. Therefore, some local public projects are being curtailed. Advertising volume in the local newspaper is down and the construction industry's outlook is bleak, at least in the short run. One resident said the people are too worried about their economic picture to involve themselves in the BLM's planning process.

The Pershing County Chamber of Commerce and the County Commissioners said they are actively promoting to encourage new business and industry in the valley. The mayor says the city is not actively promoting but would welcome some kinds of business and industry. He said the area needs more employment opportunities so their young people will have more choice of jobs.

New companies are coming to Pershing County. A plant for liquifying and storing natural gas is to be started sometime in 1980. It is to cost about 23 million dollars and, when completed, will use 12 to 15 permanent employees. A cement plant is also scheduled near Lovelock and should employ nearly 200 people in the construction phase and 100 in its operational phase. The plant is scheduled to open sometime in 1981. An industrial park with a railroad spur into it is being promoted. So far two small businesses have settled there.

A new mobile home park and a subdivision have been approved. Both will be developed as they are needed. The subdivision is to be about 50 individually-built homes and about 50 modular houses.

A Lovelock realtor emphasized the need for low-priced housing and especially for low-priced land for mobile homes. The modular homes will cost about \$48,000 for 900 square feet which is much too expensive, according to the realtor, for most people in Lovelock.

Pershing County with its 6,000 square miles and population of about 3,000 is sparsely populated--and most residents prefer it that way. More than two-thirds of the county population live in and around Lovelock. Unionville, Mill City, and Imlay, the only other towns in the county, have no more than 200 people among them.

Lovelock encourages growth and change--at least the officials and the most vocal of the residents say they do. The ranchers and farmers are, however, anti-development, according to the County Extension Agent, because they want to keep their land.

Lovelock people who were interviewed seem relatively satisfied. Several people made the point that the residents stay there a long time. A former county official was impressed with the number of people who were interested in and involved with the county's master plan in the early 70s.

The county residents are proud of their accomplishments, e.g., an exhibit that received special attention at the 1979 Nevada State Fair. Several civic and general purpose clubs flourish in Lovelock, and the Chamber of Commerce is active in attracting new business in town.

An active Senior Citizens Group exists in Lovelock also. In a donated building which was remodeled by local volunteer help, the senior citizens provide a hot lunch and also a meals-on-wheels service for shut-ins.

Short interviews with local people published in the Lovelock paper indicate that many people move to Lovelock when they retire. Census figures from 1970 show 11% of the Pershing County population is over 65 years of age, compared to only 6% of the state's population. In 1970 the median age in the entire state was 27.8 but in Pershing County the median age was 33.7.

Older people, as a group, react differently to issues than a younger group would. Senior citizens have more time to write letters, go to meetings, and promote or protest causes. They also tend to be more conservative than younger people, and are more resistant to change (Dulany et al. 1958).

Pershing County's rate of return for the questionnaire (number returned as a percentage of population) was almost 50% higher than any other Nevada county and almost three times as high as the rate for Nevada as a whole (The Governor's Commission on the Future of Nevada 1980).

Lovelock is the shopping area for some of the Sonoma-Gerlach area ranchers but many from the western part of the resource area buy in Reno and those from eastern Pershing County do most of their shopping in Winnemucca.

The Interstate Highway brings tourists and their money to Lovelock but it also brings problems. Several people talked about the undesirable offshoots from I-80. Pershing County has about 80 miles of I-80 so the number of accidents and emergencies in the county cause many problems. One Lovelock resident said that local officials worry a good deal about the problems from the federal highway.

A law enforcement officer blames most of the drug problems on transients, although two other persons said Lovelock has its own share of drug problems--mostly with young people, and a recent drug bust confirms this.

The local welfare eligibility worker said the only authority he has to help transients with emergency problems in Lovelock is to give them enough gasoline to get to the next town. Occasionally medical emergencies happen and the hospital is often left unpaid.

The county is in good shape financially according to a county official, but investigation showed that the county's bonding capacity is fully committed.

A review of six months' issues (March 7 to September 11, 1979) of Lovelock's newspaper, the Review-Miner (25 issues), and Winnemucca's Humboldt Sun (50 issues) showed the following: letters to the Editor (anti-BLM) in the Review-Miner--two, and in the Sun--four; articles and editorials (anti-BLM) in the Review-Miner--21, and in the Sun--10.

No articles were found in either newspaper that could be considered positive or approving of the BLM. The Sun carries most of the news releases from the Winnemucca District Office and the Nevada State Office. No BLM news releases have been noted in the Review-Miner.

There is no obvious minority problem in the Sonoma-Gerlach Resource Area. Indians live at the Pyramid Lake Reservation (just outside the resource area) and also about 100 are in the Indian Colony in Lovelock. Except for a deputy sheriff talking about Indian drinking problems, no other comments were made about Indians by any of the interviewees.

Lovelock has some Chicano population, about 5% according to some residents. No one knows how many Mexican nationals are in this country illegally. One retail merchant says some Mexican nationals come back year after year to work during the summer months. This person said most of the Spanish-speaking people are polite and good workers, and other employers give essentially the same recommendations. The Mexican nationals will work longer hours and for less pay than American citizens.

One person said more Mexican workers arrive each year and will soon cause problems because the schools are not equipped to handle them and low-cost housing is not available. He says Lovelock does not want too many Mexicans because they cause problems "like Winnemucca has." (See Paradise-Denio PAA in Winnemucca District Office files.)

Gerlach-Empire

In the western portion of the Sonoma-Gerlach Resource Area the town of Gerlach (in Washoe County) was owned and operated by the Western Pacific Railroad until 1975 when an association of local residents bought the land. The town has fewer than 300 people now but one local resident said the town was much larger when the railroad was busier.

Mining operations in the Gerlach area increased with the advent of the railroad and have continued to the present time. The mining industry is characterized by boom and bust cycles around Gerlach and in Pershing County also.

The small portions of Washoe, Lyon, and Churchill Counties in the Sonoma-Gerlach Resource Area are also sparsely populated. Two towns in Washoe County, Gerlach and Empire, have about 250 and 400 people each.

Most people interviewed consider the low population a reason for moving to and/or staying in the area. Aside from a few people in Lovelock who are enthusiastically pushing for new industries, most local residents prefer the solitude and the present scarcity of people.

A businessman in Gerlach did admit he wouldn't mind if the town grew 'a little'--but 'not too much,' even though he would undoubtedly profit from any growth in the area.

Gerlach and Empire are six miles apart and about 100 miles from Reno, the nearest city, and almost that far from a medium-sized town in northern California.

Empire is a company-owned town--the U.S. Gypsum owns and operates the plasterboard plant, the only food market and all the houses that the employees live in.

The company supplies water to Empire residents from company wells and also furnishes an indoor swimming pool, tennis courts, and a nine-hole golf course. Not only employees and their families but also Gerlach and other local residents are welcome to use the recreational facilities. Only U.S. Gypsum employees may rent the houses.

The U.S. Gypsum Personnel Manager said the company's mine, six miles from the plant, will supply their operation for at least 80 years.

Most of the particulates that were once emitted from the stacks are now caught during the scrubbing process. The very few particulates that do enter the surrounding air are gypsum which is used in soil treatments. The visible emissions from the plant's smokestacks are simply steam, according to the Personnel Manager.

Gerlach is built on land that was owned by the Western Pacific Railroad for about a hundred years. Land for homes and businesses was leased from the railroad.

In 1975 the railroad sold the land to an association of local residents for \$18,000. The association then sold the lots on which homes and businesses had been built. Even at six cents a square foot the association made a profit--which was turned over to a newly-formed water district and used to upgrade the wooden pipes of the original water system built in 1909.

The local residents are proud of their industry and their organizing ability, and they are pleased to be able to control part of their lives. The paperwork and most of the other labor connected with the organization and operation of the water system is volunteered, as is the time also given to the proposed sewer system planning, to the ambulance operation, and to other local projects.

One woman who has lived in Gerlach for more than 50 years says she doesn't ever want to live anywhere else. The principal of the high school moved to Gerlach when he was a kid, went away to college and then taught school, waiting his chance to apply for a teaching job in Gerlach. He says Gerlach is 'a great place to live' and he doesn't want to move away.

A local man has planned a subdivision of homes on land he now owns. At present there are no vacant houses to buy or rent.

Some tourists do stop in Gerlach, but the highway is not heavily travelled so tourism is not an important part of the economy except for hunters in the fall. The customers of the one motel in Gerlach are tourists, railroad workmen, recreationists, and occasional government workers on surveys or similar types of assignments.

Several residents told the interviewer that Gerlach is a 'good' or a 'great' place to live and to bring up children. They spoke of the friendliness of the people, the clean air, the opportunities to be alone, the lack of traffic and noise, and the freedom from the problems of the cities.

Gerlach is another community where the residents stay for long periods of time.

Empire and Gerlach, six miles apart, are somewhat interdependent. The elementary school is in Empire and the secondary school in Gerlach. Businesses such as bars, service stations, and motel are in Gerlach.

Sports events at the secondary school are big affairs locally--most people attend and support the local teams. Local clubs and groups include an adult men's basketball team, a women's club, VFW with a women's auxiliary, a senior citizens' group, and two churches--Catholic and Latter Day Saints. Two people said there are plenty of social events to keep them occupied.

Sudden and large geothermal development could disrupt this very cohesive community. Several people (including U.S. Gypsum employees) moved there to escape from the traffic, noise, crowding, and competition of the city, and they have stayed because of the area's isolation and the friendliness of and acceptance by the local residents.

Life in Gerlach is quiet, relatively unchanging and, according to one person, just the way they like it. Very little interest was shown in what the rest of the world was doing--even the Sagebrush Rebellion does not stir them.

Fernley

Most of Fernley is just over the line into the Carson District of the BLM, but expansion of the town and its industrial area could involve the Winnemucca District also.

Interviews with three Fernley residents (a realtor, a housewife, and the president of the Town Board) showed Fernley people to be pro-development.

The realtor said Fernley had grown too fast and without adequate planning in the last two years. He thinks the present slowdown in construction (because of high interest rates and gasoline prices) is good for the town. He hopes they'll have time for assessment and planning now so future growth will be more smoothly and efficiently accomplished.

The Town Board is working to get some kind of bus service for Fernley residents who work in Reno. Regular shuttle bus service could attract more Reno workers to Fernley.

A linen supply company and an electronics firm are planning to build soon in Fernley, according to the Town Board president, and other businesses have expressed varying degrees of interest in locating there.

Generally, it is felt that most industrial development will be south of the freeway because of the railroad tracks.

Fernley is on the north edges of Lyon County and is much closer to Reno than to the Lyon County seat, Yerington. Not all county services are available in Fernley.

Two of the interviewees said that about half the residents favored the idea of the Reno airport's moving to either the proposed Wadsworth or Fernley site. They also said local people would not object to the sight of geothermal wells and, if given the choice between development and conservation of the land for wildlife and/or esthetic values, would prefer development.

General

In Lovelock, the Sagebrush Rebellion is an important topic of conversation. Many people, including local officials, say that a majority of county residents are in favor of the Sagebrush Rebellion. However, about half of the local people who were interviewed are either against the Sagebrush Rebellion or say they haven't decided their positions.

Two ranchers said they had not read enough to make up their minds about the Sagebrush Rebellion. Both, however, belong to the Nevada Cattlemen's Association which has taken an active stand in favor of the state's taking over the public lands.

Most objections to the Sagebrush Rebellion concerned fear of limited access to recreational areas, either because the state would sell the public lands or lease them with the lessee being given the right to post no trespassing signs. Other reasons were: (1) the state does not do a good job managing the land it has, (2) the state can't afford to take care of the land and, therefore, either the resources will be neglected or taxes will go up, (3) the Sagebrush Rebellion will only help the big ranchers and miners who are pushing it, (4) fear that the state will sell the land to corporations and out-of-state owners who will not care for the land nor be good neighbors, and (5) the known (BLM) is preferred to the unknown (state).

Many people who strongly favor the Sagebrush Rebellion give specific reasons such as: (1) it would be easier to influence Carson City than Washington, (2) the state would quickly control the wild horse problem, (3) there would be no wilderness studies or areas, (4) the state would not restrict miners and prospectors in their work, and (5) the state would allow ranchers more freedom on leased land.

Others give general reasons such as: (1) it's "our" land and we should have control over it, (2) easterners don't understand the west, (3) local control is better, (4) the state's rights argument--Nevadans should control their own lands, and (5) those eastern environmentalists have no right to control "our" land.

Running like a thread through these comments is the word 'control.' Sonoma-Gerlach people seem to think that everything would be better if the rules and regulations originated locally, whether state, county, or city. Several people said that conditions would improve if the state or district offices of the BLM had more autonomy. They think outsiders do not understand the land or the local problems. Ruth Houghton made this point in the Winnemucca District SEP--local residents think they are best equipped to decide about ways to use local lands.

Pershing County's greatest concern, as shown on the questionnaire, is about Federal government regulations of the BLM, Forest Service, etc. In general, Pershing and Humboldt County people are not in favor of increasing public expenditures for various programs--the only exceptions are: health services, police protection and services to the elderly and handicapped (Governor's Commission on the Future of Nevada 1980).

This anti-growth sentiment was shown in a study done in southeastern Montana and northeastern Wyoming where coal development has suddenly and drastically changed the entire area. The ranchers were against the coal mining and proposed power plants from the beginning and even formed an unlikely alliance with several environmental groups to fight the coal development (Gold 1974).

Townspeople, especially the retail store owners, generally favored development, but most ranchers and farmers bitterly resented the changes--the overcrowded stores and bars, the behavior of the construction crews, the overcrowded schools, and the shift in the center of influence. With new money in a county, along with a different outlook from a new set of voters, the ranchers' influence was diluted (Gold 1974).

Sonoma-Gerlach ranchers echoed many of the same sentiments as were reported from Montana and Wyoming people. All of the interviewed ranchers said, in one way or another, that the solitude and distance from noise and people were among the most desirable attributes of ranch life.

Asked what they most preferred about living in Nevada, the first choice of every county except Clark was the category of 'open space/sparse population/peace and quiet/uncongested' (The Governor's Commission on the Future of Nevada 1980).

If intensive geothermal development should occur quickly in the Sonoma-Gerlach Resource Area, the ranchers and many of the townspeople might experience the same dislocation and even disorientation. Most local residents are conservative and unused to change.

Ruth Houghton (Winnemucca District SEP 1976) emphasized the desirability of the familiar to ranchers and other long-time residents of this area. They admire and trust old friends and feel an affinity for their particular locales.

An easterner living and working in Pershing County said he came west to get away from pollution and people, but was appalled to find that Nevadans are still thinking and believing in the same values that easterners discarded many years ago. This person is scornful of Nevadans' "outmoded" approach to problems and events.

Many ranchers today are the third or fourth generation of their families to own land and use the federal range. They have, therefore, acquired a possessive feeling toward the public range and a sense of responsibility toward the local community (Houghton 1976). Several ranchers talked about their love for the land. They want their children to follow in their footsteps, but some admit sadly that this succession may not come about.

A Lovelock resident who knows and deals with both ranchers and prospectors said the majority of local residents favor the Sagebrush Rebellion, partly because they want local control and partly because they like being rebellious.

Both ranchers and miners dislike the BLM, this person says, and part of the reason is a lack of dialogue. More face-to-face meetings and more dialogue are needed to promote understanding.

The same Lovelock resident (see above) said public meetings are a waste of time--the ranchers and prospectors will not reveal their true feelings or, in many cases, their actual opinions in a peer group, and also many are simply uncomfortable speaking up in a large group. Ruth Houghton (Winnemucca District SEP 1976) also said that face-to-face meetings on the ranchers' home grounds are important to them.

Some Sonoma-Gerlach residents did say that the District Advisory Councils would be a good idea if the councils had control over decision-making.

PAA Table 1a
Significance of Pershing County Social Well Being

<u>Difference Well-being Factors</u>	<u>Nevada State (a)</u>	<u>Pershing County (b)</u>	<u>Percent of Difference Between (a) and (b) *</u>
(1) Population Change (Average Annual Rate of Change)			
1960-1970	5.5%	-1.79%	-133%
1970-1977	3.8%	1.14%	-70%
(2) Per Capita Income 1977	7,980	6,437	-19%
(3) Rate of In-migration as an Indicator of Employment Opportunity			
1960-1970	50.4%	-24%	-148%
1970-1976	19%	3.5%	-82%
(4) Unemployment Rate Third Quarter 1979	5.2%	2.8%	-46%
(5) Median Effective Buying Income 1978	18,017	14,911	-17%
(6) Families Below Poverty Level % 1970	6.9%	11.3%	64%
(7) Housing Units Lacking Some Plumbing Facilities % 1970	7.2%	11.5%	60%
(8) Housing Unit % Over- crowding (more than 1.01 persons per room) 1970	9.7%	6.4%	-34%
(9) Infant Deaths Per 1,000 Live Births 1975	16.6%	0	-100%

* A difference greater than 20%--either positive or negative--is considered significant.

The extreme variation between Pershing County and the entire state is a function of the difference between the urban situations where 90% of the population lives and a rural area such as Pershing County. Point of view determines which area is more favorable. Pershing County, as compared to the state, has: (1) lower population growth, (2) lower per capita income, (3) fewer job openings, (4) lower unemployment rate, (5) lower buying power, (6) more low income families, and (7) more primitive and overcrowded homes as shown in (7) and (8) above. No infant deaths were recorded in the county in 1975, but this may be because anticipated problems are sent to Reno doctors and hospitals.

PAA Table 1B*
SIGNIFICANCE OF SOCIAL WELL BEING

HUMBOLDT COUNTY

<u>Well-being Factors</u>	<u>State(a)</u>	<u>Humboldt County(b)</u>	<u>Percent Difference (See note below)</u>
1) Population Change (Average Annual Rate of Change)			
1960-1970	5.5%	1.17%	(b-a)/a=-79
1970-1977	3.8%	2.5%	(b-a)/a=-34
2) Per Capita Income 1977	7,980	6,168	(b-a)/a=-23
3) Migration Pattern as an Indicator of Employ- ment Opportunity			
1960-1970	50.4%	-0.1%	(b-a)/a=-100
1970-1976	19%	8.4%	(b-a)/a=-56
4) Unemployment Rate First Quarter 1979	5.2%	4.4%	(b-a)/a=-15
5) Median Effective Buying Income 1978	\$18,017	\$16,716	(b-a)/a=-7.2
6) Families Below Poverty Level (%) 1970	6.9%	7.5%	(b-a)/a=9
7) Housing Units (Rural Nevada) Lacking Some Plumbing Facilities (%) 1970	7.2%	10.6%	(b-a)/a=47
8) Housing Unit % Overcrowding (more than 1.01 persons per room) 1970	9.7%	10%	(b-a)/a=3
9) Infant Deaths Per 1000 Live Births 1975	16.6%	25%	(b-a)/a=51

NOTE: If county social well-being indicator deviates from that of the state by as much as 20% (either positive or negative), the difference is considered significant.

*Excerpt from the Paradise-Denio PAA 1979

RESOURCE ANALYSIS

This section is subheaded under the resource activities: Lands, Minerals, Forest Products, Range, Wild Horses & Burros, Wildlife, and Recreation. The base information is used in this section to determine the social and economic significance and future demand for each resource.

LANDS

A. Quantifiable Land Use Classes

The Sonoma-Gerlach Resource Area contains 5,858,398 acres in Churchill, Humboldt, Lyon, Pershing and Washoe Counties (see PAA Table 2 for acreage data). Public lands, administered by BLM, account for approximately 75 percent of land ownership in the resource area. Due to limited data on a resource area or planning unit basis, major sections of the analysis will be based on Pershing County data, which encompass approximately 63 percent of the resource area.

The Southern Pacific Company is the largest landholder in the resource area behind the Bureau of Land Management. The federal government, in order to encourage construction of the nation's first transcontinental railroad, granted 5 million acres in a checkerboard pattern to the Central Pacific Railroad in the 1860s. The Southern Pacific Company, the successor to the Central Pacific, is the owner of the remaining 1.5 million acres which have not been disposed of. Checkerboard land patterns have created management problems for both federal and private owners. Trespass, wild horses, exchange-of-use agreements, and access are some of the major problems associated with this ownership pattern.

In order to alleviate these problems attempts have been made to consolidate ownership into large blocks through land exchanges and sales. Some attempts have been successful but large tracts within the resource area remain in the checkerboard pattern

1. Urban-Suburban

Approximately five square miles, less than one percent of the resource area, are identified as qualifying for urban and suburban land use classification. The majority of the urban-suburban land in the resource area is concentrated within the communities of Lovelock, in Pershing County, and Winnemucca in Humboldt County. The balance is distributed among several small communities located along Interstate 80, two old mining towns located in the Humboldt Mountains, and two communities in northeastern Washoe County (Empire and Gerlach). Land use characteristics for the cities of Winnemucca and Lovelock are presented in PAA Table 3.

PAA TABLE 2

SONOMA-GERLACH RESOURCE AREA
COUNTY LAND OWNERSHIP STATISTICS

County	BLM	Private	Indian	Federal Withdrawal Bureau of Reclamation	Withdrawals		Other Federal Withdrawals	Lahontan		County as Percent of Resource Area
					Federal Public Water Reserves	Public Water Reserves		Cutthroat Trout Natural Area	Total	
Churchill	186,142	224,900		44,000					455,442	7.8
Humboldt	668,604	185,721	10,329				339	10,328	875,321	14.9
Lyon	120	14,692		10,582					25,394	0.4
Pershing	2,806,544	827,613		29,990			9,283		3,673,430	62.7
Washoe	742,249	85,666		816	80				828,811	14.1
Total	4,403,659	1,338,592	10,329	85,788	80		9,622	10,328	5,858,398	100.0

Type of
Ownership
as Percent
of Resource
Area

75.2

22.8

0.2

1.5

0

0.2

0.2

Source: Sonoma, Buffalo Hills and Blue Wing Unit Resource Analyses, U.S. Department of the Interior, Bureau of Land Management, 1980

PAA TABLE 3

Land Use Characteristics for the Cities of Lovelock and Winnemucca

	Lovelock ^{1/} (acres)	Winnemucca ^{2/} (acres)
Residential	97.6	213
Apartments and Mobile Homes	11.5	48.1
Commercial	31.4	70.6
Industrial	10.0	48.9
Public and Quasi Public	28.1	178
Transportation Right of Ways	123.9	440
Agricultural	---	465
Vacant	84.6	976
TOTAL	387.1	2439.6

^{1/} Conger, Thomas A., 1974^{2/} Humboldt County Regional Planning Commission, 19762. Agriculture

With the exception of about 11,000 acres (5,000 in Hualapai Valley near Gerlach in Washoe County and 6,000 in Humboldt County) all agricultural lands in the resource area lie in Pershing County. Major agricultural areas in the county include Lovelock Valley, Grass Valley, Pleasant Valley, and an area west of Mill City.

Pershing County tax assessment records identify 52,000 acres of irrigated land in the county (see PAA Table 4) with an additional 174,702 acres of private land being used for grazing. The majority of the irrigated land (37,000 acres) is located in Lovelock Valley.

PAA TABLE 4

Pershing County Irrigated Acreage

<u>Use</u>	<u>Acres</u>
Cultivated	42,400.5
Wild Hay or Meadow	784.32
Pasture	8,814.34
TOTAL	51,999.16

Source: Pershing County tax assessment records, 1979.

3. Utility Systems

There are essentially two types of utility rights-of-way in the resource area: (1) local and regional distribution lines and (2) major interstate transportation and utility easements. In the first category, the various local and regional utility services generally locate their distribution systems along existing roads but will sometimes deviate in order to take advantage of topographical features, or to reduce the length of their systems. There are approximately 437 miles of local and regional utility rights-of-way in the resource area, 280 lineal miles of which pass through public land.

The second category of utility system (major interstate transportation and utility easements) have generally been built to take advantage of the topography. A major well-defined corridor which includes the Southern Pacific railroad and Interstate 80 enters the resource area in its southwest corner, proceeds northeasterly along the Humboldt River through Lovelock and Winnemucca and exits just west of Battle Mountain. Rights-of-way have been granted for a second major utility corridor which will carry a 345 KV transmission line from Valmy to Oreana where it will connect with an already existing line which runs from Oreana to the Tracy Clark substation near Reno. Total right-of-way mileage for the major utility systems in the resource area is 263 miles, 152 miles of which pass through public land.

4. Other Land Uses

Five communication sites (with an acreage of not more than two acres) and two sanitary landfills, one near Lovelock and one near Gerlach (of about 10 acres total) are located within the resource area. Approximately 1,980 acres have been withdrawn from entry and set aside as public water reserves in Pershing County. Public water reserves are springs with a minimum flow of 210 gallons per day; they were reserved by Executive Order in 1926. The Bureau of Reclamation has acquired 39,337 acres from private, state and public lands for development of dam and irrigation facilities at Rye Patch Reservoir in Pershing County. Much of the land is administered by the Nevada State Parks Department which has developed recreation facilities near the dam.

B. Nonquantifiable Land Uses

The lands within the Sonoma Gerlach Resource Area have been classified for multiple use management under the Classification and Multiple Use Act of 1964. This act eliminated all land in the Sonoma-Gerlach Resource Area from applications for entry under the Homestead, Desert Land, and Pittman Acts - except for Grass Valley south of Winnemucca, Buena Vista Valley south of Mill City, and the area along the Humboldt River in Pershing county. These areas are still open to all forms of entry; however, Desert Land Entries are restricted to areas which have not been classified as designated basins by the Nevada State Engineers Office. These same areas are designated basins and consequently not subject to appropriation via the Desert Land Entry Act.

The transfer of public land to private ownership is still possible by means of the Carey Act, the Recreation and Public Purpose Act (R and PP) and the Federal Land Policy and Management Act of 1976. Federal regulations to implement the sale authority of FLPMA and revised regulations for the Carey Act have yet to be approved. Transfers under the R and PP Act are currently being approved where qualified applicants have demonstrated the need to obtain land for recreation and public purposes.

Regional Trends

Population growth in Pershing County has been erratic over the past fifty years, decreasing in the 20s and again in the 60s after slight gains during the 40s and 50s.^{1/} In the early 70s population continued to decline due to closure of the lead, tungsten and antimony mines which employed approximately 160 persons. Lovelock's theater and casino employing 35 persons closed after the mine closures. The population began to increase again in 1974 and the annual growth rate since 1974 has been about four percent, well below the state's growth rate. The Nevada Division of Water Resources has classified Pershing County as a "slow growth" area, therefore current low growth rates are expected to continue into the future. The 1970 population of Pershing County was 2,670 persons. The Nevada State Planning Coordinator's office projects populations of 3,111 by 1980 and 3,887 by 1990.

^{1/} Winnemucca District Socio-economic Profile 1976.

Data presented in the Pershing County General Plan indicate that approximately 87 percent of the Pershing County population reside in Lovelock Valley.

Growth in the Fernley area, just outside the southwestern border of the resource area may result in some demand for land within the resource area, particularly if Fernley is chosen as the site for the new Reno airport. The airport proposal calls for the acquisition of 3,200 acres of public land. Current growth patterns and indications for the future are that growth will occur south of the Sonoma-Gerlach Resource Area boundaries.

The recent phenomenal rise in the price of gold and silver has spurred intensive interest in the rich mineral resources of the area. The growth in mining activity is expected to have a substantial impact on the Pershing and Humboldt County economies and could easily result in the demand for release of public land. Expanding interest in the area's geothermal resources may also impact the local economy and the demand for public land. The community of Gerlach in particular, in northern Washoe County, will be significantly impacted if development of nearby geothermal resources occurs. One report estimates that full development of geothermal resources near Gerlach for electricity generation would increase employment by 42 persons, 17 percent of 1978 nonagricultural employment (Eadington, Taylor and Tissier 1979.)

Temporary demands will be placed on the facilities and services of communities in the resource area during the construction phase of the Valmy to Oreana 345 Kv powerline. A natural gas pipeline expected to be built in the existing utility corridor from Lovelock to Carson City, Nevada, may also impact local communities.

D. Significance

PAA Table 5 illustrates the significance of different land use classes in terms of employment and income generated by the economic sectors or industries within the respective classes. The table also illustrates the diversity of the Pershing County economy, an important element which lends stability to the region.

Employment and income is greatest among the industries within the urban and suburban land use classification. These industries account for 59 percent of employment and 51 percent of income within the county. On a statewide basis urban and suburban based industries are responsible for 91 percent and 89 percent of employment and income, respectively. The difference between the Pershing County and statewide figures is an indication of the rural orientation of the county economy. Although the industries within this classification account for the majority of income and employment, the largest single industry is agriculture which accounts for 21 percent of employment and 29 percent of income. Major agricultural crops include alfalfa hay and seed, corn, and winter wheat. Pershing County agricultural crops significant at a statewide level include alfalfa hay and alfalfa seed. The county is the largest producer of alfalfa seed in the state, accounting for 67 percent of the state's production.

Livestock raising is also an important part of the agriculture industry. In 1974 almost 50 percent of the market value of agricultural products produced in Pershing County was attributable to the value of livestock and livestock products.^{1/} The livestock sector is actually of greater importance than this figure would indicate because much of the cropland agriculture is devoted to hay and alfalfa which is fed to livestock at the county's large feedlot operation and during the winter by the resource area ranchers. Agriculture is of substantially greater importance to the county than it is to the state as a whole where it accounts for only 1.6 percent of employment and 0.8 percent of income.

Within the urban and suburban lands classification, personal income was greatest in the government sector. This sector ranked second as a source of personal income and employment in the entire county. Almost 91 percent of the income generated by government employment is by employees of the local and state governments. The federal government is responsible for 2 percent of income in the county, below the statewide average of 7 percent while state and local government account for 17 percent of income, considerably above the statewide average of 11 percent.

^{1/} 1974 Census of Agriculture, Nevada

PAA TABLE 5

LAND USE RELATED EMPLOYMENT AND INCOME IN PERSHING COUNTY 1977

Industry or Sector	Employment ^{2/}		Income ^{3/}	
	Persons	% of County	\$1,000	% of County
Urban and Suburban Lands				
Construction	10	0.9	325	2.3
Manufacturing	40	3.6	400	2.9
Trade	240	21.8	2,260	16.2
Financial, Insurance & Real Estate	20	1.8	275	2.0
Services	80	7.3	908 ^{1/}	6.5
Government	230	20.9	2,654	19.0
Other	22 ^{1/}	2.0	254	1.8
Subtotal	652	59.2	7,076	50.6
Agricultural Lands				
Agriculture	230	20.9	4,079	29.2
Utility				
Trans. Comm. & P.D.	60	5.4	1,013	7.2
Mineral				
Mining	160	14.5	1,817 ^{1/}	13.0
TOTAL	1,102	100.0	13,985	100.0

^{1/} Estimates calculated by BLM, Winnemucca^{2/} Nevada Employment Security Department, Area Labor Review
Balance of State 1978, Fall 1978.^{3/} Personal Income by Major Sources 1972-77, April 1979.

The trade sector, also within the urban and suburban lands classification, is the largest source of employment in the county but ranks third in terms of personal income. This sector grew 30 percent during the six year period from 1972-1977. Much of the increase is attributable to the growth in tourism that occurred during the period. Although data are not yet available for 1978 and 1979, the Pershing County Commissioners have stated that tourism has declined significantly (35 percent) due to the escalating cost and shortages of fuels.

The mineral industry ranks fourth both in terms of employment and income. The Eagle Picher diatomaceous earth processing plant outside Lovelock is the single largest source of mineral related employment in the county; it employs about 125 people. The U.S. Gypsum Perlite mine, north of Lovelock, is another large operation. The counties' mining industry is dependent on several unstable factors such as international markets, uncertain future of discoveries, rapid exhaustion of ore, and rapid changes in technology.^{1/}

The recent increases in the price of gold and silver are an excellent example of the impact of changes in international markets. These increases have stimulated strong interest in developing the area's rich gold and silver resources. The impact of escalated mineral activity in the area has an effect on the facilities and services of the local communities and may result in some demand to patent public land. The mineral industry is another sector that is substantially more important to the county than it is to the state. On a statewide basis mining accounts for 1.6 percent and 1.3 percent of income and employment, respectively, while 13 percent of income and 14 percent of employment is generated by the mineral industry on a county-wide basis in Pershing County.

The transportation, communications, and public utilities industries within the utility land use classification are responsible for five percent of employment and seven percent of income in the county. This sector is more important than these figures would indicate. The county's economy is dependent on its transportation system for tourism and marketing of its agricultural and mineral products. Utilities, in fact, comprise 46 percent of the present total net assessed valuation in the county. This sector is not a large source of employment or personal income due to mechanization and automation of facilities.

^{1/} Winnemucca District SEP 1976

E. Additional Analysis

The population density of Pershing County is about .5 persons per square mile, much less than the Nevada average of 5.3 persons per square mile and the United States average of 60 persons per square mile. The estimated population of lands in the urban suburban classification in Pershing county is 1,781 persons. The population density of the incorporated area of Lovelock is 2 persons per acre and that of Winnemucca is 1.7 persons per acre. From PAA Table 2 it can be seen that occupied residential acreage within the two cities is much less than total acreage. Basing density on the occupied residential acreage, figures of 14 persons per acre are derived for Lovelock and 19 persons per acre for Winnemucca. Substantial acreage (85 acres in Lovelock and 976 acres in Winnemucca) of vacant private land remain within the city limits of both communities.

The 1974 agriculture census indicates that there are 84 farms with irrigated cropland in Pershing County. At an average of 2.93^{1/} persons per household and with a total of 52,000 irrigated acres of private agricultural land in the county, population density of agricultural land would be 3 persons per square mile.

The 1977 population of Pershing County was 2,890 persons. Total employment is 1,310 persons per 1977 data. The population employment ratio derived from these figures is 2.21, indicating that 2.21 persons were dependent on each employed person.

F. Demand Projections

1. Local Demand Analysis

Population within Pershing County is projected to grow 34% from 1977 to 1990 to a population of 3,887.^{1/} The City of Lovelock is well prepared to accommodate this growth. The city has recently constructed new water and sewer systems which have the capability to support 20,000 people^{2/} well beyond population projections. The vacant land within the city, however if occupied at the current residential density of 14 persons per acre, could support an additional 1200 people, only 300 more than 1990 population projections for

^{1/} Nevada State Planning Coordinators Office, December 1978.

^{2/} Personal communication, Lovelock City water department November 1979.

the county estimate. Lovelock is surrounded by private land which should be sufficient for expansion of the community due to population increases. Some interest has been expressed in acquiring public land for expansion of the airport, for a proposed golf course and for industrial sites seven to eight miles east of town. The golf course proposal and the land for industrial sites are long-range proposals. The draft General Plan Background Data for Humboldt County identifies 1,070 acres of residentially zoned land within the City of Winnemucca. Only 213 acres (20%) are currently developed for residential purposes. The 764 acres of vacant residentially zoned land remains to accommodate future population growth. At current density rates of 19 persons per acre, this land could absorb an additional 24,500 people, well above 1990 population projections, without requiring additional land. The demand for public land to facilitate growth of the urban and suburban population is therefore expected to be negligible.

The community of Imlay encompasses approximately 300 acres, about 50 percent of which is vacant. The town consists primarily of single family residences and mobile homes, many of which are owned by retired persons. The Pershing County general plan has classified the community as an urbanizing area. This process should be accelerated by the reopening of General Electric's tungsten mine which is expected to employ about 200 persons when in full operation. Imlay, one of the closest communities, is within 15 miles of the mine and should be the site of some demand for housing and public services by employees of the mine. Growth of the community may result in the demand for release of public lands in order to facilitate expansion.

Mill City had a population of 10 in 1970, but has grown with the addition of Stuckeys, a nationwide chain that supplies overnight camping, restaurant, store and gas facilities. Approximately 95 percent of the lots were vacant in 1974. This community should also be impacted by reopening of the tungsten mine. The high percentage of vacant lots in this town should be sufficient to meet community expansion through the current planning period.

The communities of Empire and Gerlach are the only population centers in the Washoe County sector of the Sonoma Gerlach Resource Area. These communities are within five miles of each other and share education facilities. Empire is a town of 400-450 persons owned by the U.S. Gypsum Company which operates a gypsum plant there. The gypsum plant employs approximately 150 persons and owns ore reserves with an estimated life of 80 years. Conditions within the community are stable and are projected to remain so through the planning period. No demand for release of public land for use by the community is anticipated.

The community of Gerlach is a town of approximately 110 acres, 30 of which are vacant. With a population of 250 people the density rate is about 3.1 persons per acre on the occupied land. Gerlach was formerly a company town owned by the Western Pacific railroad. It has since been bought from the railroad by an association of its residents but continues to house railroad maintenance crews who contribute to the local economy.

The economy of the region is based on the railroad, the Empire gypsum plant, the cultivation of approximately 5,000 acres of high protein alfalfa in Hualapai Valley, north of Gerlach, ranching, and tourism (particularly the large number of hunters that pass through during hunting season). Employment statistics for 1976 (the most recent that are available) are presented in PAA Table 6. The town has a large number of retired people and conditions there are currently stable. Vacant land within the town is sufficient to meet demand into the near future and little pressure for release of public lands through the current planning period is expected.

PAA TABLE 6

GERLACH TOWNSHIP* EMPLOYMENT 1970

Construction	28
Manufacturing	
Durable Goods	79
Transportation	21
Wholesale and Retail Trade	21
Educational Services	9
Public Administration	5
Agriculture	47
Other Industries	<u>10</u>
TOTAL	220

*Gerlach Township includes all of the Washoe County sector of the Sonoma-Gerlach Resource Area.

Source: U.S. Census, 1970

2. Public Purposes

Potential demand for transfer of public land to be used for recreation and public purposes has been identified in three communities, Winnemucca, Lovelock and Imlay. The 1976 draft General Plan Background Data for Humboldt County and the Humboldt County General Plan indicate that the City of Winnemucca hopes to acquire public land in the future in order to maintain its current recreation land to population ratio.

Lands used for recreational purposes in the city presently occupy 81.5 acres, this establishes a ratio of 62.5 persons per acre of recreation land. By 1990 the Humboldt County population is projected to increase 40%. If Winnemucca maintains its current proportion of Humboldt County population (61%), then 32.6 additional acres of recreation land will be required by 1990. The 1979 Humboldt County General Plan states that an 18 hole golf course and a park complex are needed and indicates that a site east of Winnemucca or around the airport are areas of possible interest. The general plan also states that elementary school sites are needed for the Grass Valley area and in the northwestern section of the city. Some interest has also been expressed in developing a community sand and gravel pit, which could be located on public land. Other, as yet unidentified, recreation and public purpose needs may also require transfer of public lands near the Winnemucca area.

Public and quasi-public land in Loyelock occupies 28.1 acres. The current ratio of population to public purpose lands is 61.6 persons per acre. At a projected increase of 28% by 1990, 8 additional acres will be required to maintain the present ratio. The Pershing County General Plan, however, recommends the development of a golf course among other things. Public land may be required to satisfy this objective. Other requirements for public purpose uses should be satisfied by existing vacant land within the city.

The Pershing County General Plan also recommends that recreational facilities and equipment, a water supply reservoir and a sewage treatment plant be provided for the community of Imlay. Although 50% of the land in Imlay is vacant, the anticipated increase in demand for housing due to the opening of the tungsten mine may require the release of public land to meet both urban growth and the recreation and public purpose needs.

The Pershing County General Plan further recommends the continued expansion of facilities at Rye Patch State Park to keep pace with increased use of the reservoir and adjacent areas. Some public land may be required to meet this objective also.

3. Agricultural Lands

Irrigated cropland currently occupies about 63,000 acres of private land. An additional 174,000 acres of private land is devoted to grazing. The reopening of public land to Desert Land Entry (DLE) application has resulted in numerous applications (approximately 50 in the Sonoma Gerlach Resource Area) for public land. The major impediment towards the development of additional agricultural land in the resource area is the availability of water.

Due to the semiarid climate in the resource area all cropland agriculture requires supplemental irrigation., The Lovelock Valley area receives irrigation water from Rye Patch Reservoir on the Humboldt River. Buena Vista Valley and Grass Valley rely on ground water for irrigation. These three areas are the only areas open to DLE applications. Buena Vista Valley, Grass Valley and the northern part of Lovelock Valley are classed as designated basins by the Nevada State Engineers Office, consequently the development of additional agricultural lands has been curtailed due to lack of water.

The southern part of Lovelock Valley remains open to DLE applications but surface water from Rye Patch Reservoir is fully appropriated and although substantial quantities of groundwater are available, it is of such poor quality that it is of little use for agricultural irrigation. The result is that due to limited quantity of water and poor quality of available water, little demand for public land for the development of agriculture is expected within the resource area.

4. Other

The Humboldt County General Plan has identified a need to acquire public land that is currently under lease for the Winnemucca Airport. Approximately 890 acres have been applied for under the Airport and Airway Development Act. Transfer of this acreage awaits only the signature of the authorized officer.

The U.S. Navy has submitted a request for the withdrawal of approximately one million acres in the Gerlach and Black Rock Desert regions of the resource area as a bombing range. The area has been used as a bombing range in the past but no action has as yet been taken on the current request.

A massive project known as the Nevada International Trade Exchange is in its preliminary planning phase. Should this project be approved, approximately one million acres within the resource area would be required for the construction of an airport, light manufacturing and warehousing facilities. Preliminary plans call for location of the project between Lovelock and Fernley. Approval of this project, which would take advantage of Nevada's Free Port laws, is not anticipated within the near future.

The Sierra Pacific Power Company has indicated a desire to supply power to a ranch north of Gerlach and possibly to Alturas, California. The Company is considering three routes; from Valmy, Oreana and Mira Loma. The most likely route is from Mira Loma. Ninety percent of this route would cover public land.

G. Lands - Public Attitudes and Social Values

Several interviewees said emphatically that the public land is "our" land--therefore they are in favor of the State of Nevada managing it. They say that they will be able to do as they please with the land under state ownership, that the "eastern conservationists" will no longer be able to dictate to them, and that taxes will drop if all other western states follow Nevada's lead and organize their own Sagebrush Rebellions.

The railroad and all its land is another irritant to Nevadans. They say the railroad will not sell its land for any reason, although it will in some instances trade for an equal amount of land elsewhere. Local officials and others said the railroad is anti-development, that it fought having to pay for street improvements in town and that they (the officials) dislike dealing with the railroad's land department.

The railroad does lease land to individuals on a 99-year lease, and some people have built homes and other improvements on this leased land. A local realtor said, however, that this situation is rare, partly because most people don't understand the leasing process and are afraid to build on leased land. Also, the minimum amount of land for a lease is 160 acres--much more than most people want for a homesite, according to the realtor.

Lovelock people say they are landlocked by public lands, however the maps show most land in the vicinity of town to be privately-owned land--some of it railroad-owned. Most of the land near Lovelock is irrigated, and therefore, valuable for farming.

Several of the interviewees would like to see more land for agriculture, but no specific areas were mentioned. Others said more public lands should be privately owned--but again no specific locations. Questionnaire results show a majority of both Pershing and Humboldt County residents in favor of planning and regulating for privately owned land (The Governor's Commission on the Future of Nevada, 1980). Gravel pits were mentioned as possible uses for public lands, but no specific locations nor dates were given.

Several people in Lovelock and one in Gerlach said they wished the BLM would make available small tracts of land for individuals to build homes. However, Pershing County's land use law was designed to prevent this scatter type of development by stipulating no more than one home on 40 acres in the Lovelock area and 160 acres in more remote areas.

Exceptions to this law may be granted but it is a rather involved process. One Lovelock resident said that long-time residents have no trouble getting approval for down-zoning (special permission to build on less than 40 or 160 acres), but newcomers are frequently refused the special zoning.

Several Lovelock residents, officials and otherwise, predict that within 10 years public land will be needed for expansion of the town and for industrial expansion. One official also mentioned airport expansion and a golf course as possible uses for public land.

Some people in Pershing County take credit for getting the Sagebrush Rebellion bill passed in the state legislature in 1979. Some of these people belong to the Concerned Citizens of Pershing County, a group formed to oppose the BLM wilderness program. This Concerned Citizens group also opposes the federal government's management of public lands and endorses the Sagebrush Rebellion.

Several interviewees in Pershing County do oppose the Sagebrush Rebellion. Some are afraid the state will sell the land to large mining and ranching operations, thus cutting out the little guy. Many think access to the public lands for recreation will be limited either because of the state's selling the land, or because the state may lease the land with lessee's right to declare no trespassing. A few people, in Pershing County and in Gerlach, questioned the state's ability to manage the lands--even as well as the federal government does now.

Those who opposed the Sagebrush Rebellion are not enthusiastic about the BLM, but say state management would probably be worse. One rancher said he prefers the known to the unknown; therefore he opposed the Sagebrush Rebellion.

In Gerlach most people interviewed appeared uninterested in and not well informed about the Sagebrush Rebellion. One man said he did not know much about it but thought it was about the move to get the land 'returned' to the state.

The Eagle-Picher plant at Lovelock will continue to need public land for its raw material, the diatomite. U.S. Gypsum at Empire extracts ore on its own patented land but uses some public land for an access road. No need for additional land is known at this time, according to representatives of the two companies.

Some municipal water sources are on public land (Gerlach) and/or a combination of public and private lands (Golconda, Imlay and Lovelock), with one (Winnemucca) on privately-owned land. Also, the U.S. Gypsum Company has a water source and a pipeline across public land. BLM's actions on the public lands could affect all the above-listed water supplies, although probably only marginally the CP National wells that supply Winnemucca. A representative of CP National said his company may need some public lands for water reservoirs if two new subdivisions near Winnemucca are approved and built.

Grass Valley developments have been discussed by the City-County (Humboldt) Planning Commission. Minimum size for lots, proper zoning designations and public facilities required have been discussed but decisions were not made.

The City-County planner hopes that public lands in and around populated areas will be kept in a sort of "land bank" against the future growth. He listed school sites, parks and golf course (expansion of the present one or a future 18-hole course) as possible future needs for Winnemucca. More gravel pits are also needed.

The problem of range cattle straying from public lands into individual's yards on the fringes of town has been discussed, according to the planner. A discussion about asking the BLM to eliminate grazing leases near towns was tabled mostly because some ranchers would be hurt if grazing were cut out.

The following two paragraphs are excerpted from the Paradise-Denio PAA:

The Mayor of Winnemucca registered a complaint concerning the length of time involved with processing the Airport Land Exchange. He bewailed the fact that the President must sign the agreement before it can take effect and emphasized that two years have already passed since the document was first submitted for approval.

Farmers and ranchers hold the opinion that agriculture and livestock should continue to be the dominant land use of northern Nevada. Agriculturalists also think that the federal government should release more land to private enterprise for agricultural development.

A Fernley realtor said he thought local people favored development (industrial, residential and recreational) to be in the foothills so the lowland areas could be preserved for agriculture.

A Fernley development firm is planning (no definite dates) a large residential subdivision south of I-80 (Carson District) with a pool, golf course and other recreational facilities. A large mobile home park (double-wide homes) is also being planned and the developer is making arrangements for a shuttle bus service into Reno (35 miles) for the residents.

If more public transportation is provided between Reno and Fernley, a Fernley realtor says that growth may again accelerate. For the present, building has slowed, partly because of high interest rates and expensive gasoline. The realtor says there are few available houses now (April 1980) in Fernley so a change in either factor (gasoline prices or interest rates) could immediately trigger more building.

The Reno Airport Authority has considered moving the airport to two different locations in the Fernley-Wadsworth area. According to some Fernley people, pro/con opinion about the airport being next door was about 50/50.

A Reno Airport Commission member said there is very little possibility of a move in the next five years; however, the Airport Commissioners are planning to acquire and bank land for the Wadsworth location. This site would not require any public land. The Fernley location (north of I-80) would require about 3,700 acres of public land, about one quarter of the total acreage needed.

Wadsworth, about 6 miles northwest of Fernley in the Carson BLM District is surrounded by the Pyramid Lake Indian Reservation and is therefore effectively land locked. A local businessman who is a long-term resident said the town's economy is depressed. He said a dumpsite is needed and that land for an industrial park might revive the economy. Two residential subdivisions have been approved but no one has been interested in building. Washoe County administers the town and, according to the local businessman, no citizen group organizations exist.

MINERALS

The mineral industry has been an important element of the county economy since white man first settled in the area in the 1800s. Copper, gold, silver, iron, mercury, and tungsten are minerals which have contributed significantly to county income. The industry is subject to wide up and down fluctuations due to its dependence on several unstable factors: international markets, uncertain future of discoveries, rapid exhaustion of ore, and rapid changes in technology. In 1977 the Pershing County mineral industry contributed an estimated 13 percent of county income.

The trend in the recent past has been one of generally increasing prices for minerals. Improvements in technology are making the extraction of minerals from lower grade and harder-to-get-at ores economically feasible. The result has been an upsurge in prospecting activity in the last few years. The sharp rise, particularly in gold and silver prices, has given added impetus to prospecting activities in the resource area--which may signify the beginning of a cyclical upswing in the importance of the minerals industry.

A. Locatable Minerals

BLM Policy and Responsibility

The BLM takes no active role in encouraging exploration for or development of locatable mineral resources. The BLM is charged with the responsibility for determining the validity of mining claims, for approving mineral patents, and for prosecuting cases of suspected mineral trespass when and where such cases and actions involve public lands under its jurisdiction.

It is also the responsibility of the BLM to insure that the closing of public lands to all forms of mineral entry occurs only when it has been determined that the best use of the land is for some purpose other than the exploitation of mineral resources.

The Federal Land Policy and Management Act of 1976 charged the BLM with the new responsibility of establishing procedures for mining operations to (1) prevent unnecessary or undue degradation of the public lands and (2) manage Wilderness Study Areas in a manner so as not to impair the suitability of such areas for preservation as wilderness. In addition, the Act required that all mining claims filed on the public lands be recorded with the proper BLM office by October 21, 1979. In response to this mandate the BLM published final regulations for management of mining operations in Wilderness Study Areas. Proposed Regulations for Surface Mining of Public Land Under the U.S. Mining Laws were published in the Federal Register March 3, 1980.

Under both the final and proposed regulations the BLM is charged with the responsibility of conducting archeological and botanical surveys and of preparing the environmental assessments and/or environmental impact statements.

The additional responsibility placed on locatable mineral operators includes developing plans of operation, possible bonding requirements, and reclamation responsibilities.

Market Areas

Locatable minerals mined in the resource area include copper, mercury, lead, gold, silver, antimony, iron ore, tungsten, diatomite, and gypsum. In addition, a cement production plant near Fernley has claims located in the Carson City District, but the plant is located in the resource area. Limestone from which cement is produced, can be classed as either a locatable or leasable mineral depending on quality. With the exception of diatomite, cement and gypsum, all minerals leave the resource area as concentrates. The concentrates are shipped to smelters, generally in the West, where the minerals are refined. The resource area miners are paid by the smelters for their concentrates which then become the property of the smelters. In general, the smelters have nationwide markets for their refined products.

Tungsten (known for its hardness, thermal, and alloying characteristics) is most commonly used in tungsten carbide, an extremely hard material used for cutting edges on machine tools, rock drilling bits, edges of knives, etc. Other uses include steel and cast iron alloys that must withstand high temperatures (jet and rocket engines) and for electric light bulb filaments.

Antimony is used chiefly in alloys and chemical compounds. Widespread use by the armaments industry tends to cause fluctuations in demand patterns.

Diatomite and gypsum are locatable minerals which are both mined and refined within the resource area. Diatomite is used as a filtering agent for many different processes and has a nationwide market. Gypsum is used in the construction industry for wallboard. The market for this product is also nationwide. The cement plant near Fernley is the only cement plant in Nevada. Due to its bulk and weight, cement produced at the plant has a market area that includes only Nevada and parts of Northern California.

Employment and Population Dependence

Statistics compiled by the Nevada Industrial Commission in their 1978 Directory of Nevada Mine Operations indicate that approximately 259¹ persons, both proprietors and employees, were engaged in some aspect of mining and milling of locatable minerals in Pershing County. The Eagle Picher Corporation's diatomite mining and processing facilities, employing approximately 100 persons, are the largest sources of employment in the locatable minerals sector.

Employment and income multipliers have been derived for the minerals sector of the Humboldt region, which includes Pershing County, in Water for Nevada, Special Report Input-Output Economic Models, 1974.² Of the 259 persons employed in this sector 159 are employed in metallic mineral operations and 100 in nonmetallic minerals. Use of the multipliers indicates that about 335 persons are directly or indirectly dependent on the locatable minerals sector for this employment. The population employment ratio of 2.21 indicates that 740 persons are dependent on this sector.

The U.S. Gypsum processing facility near Empire in Washoe County is the single largest employer in the Washoe County sector of the resource area. This facility has been a stable source of employment for the area in the past and indications are that it will remain so through the current planning period. Employment in 1977 was approximately 150 persons. The employment multiplier and the population employment ratio indicate that 27 persons are indirectly dependent on this industry for their employment and that population dependence is 332 persons.

The Nevada cement plant near Fernley in Lyon County employs 140 persons, 26 percent of total employment in the minerals sector of Lyon County. This facility should also be a stable source of employment through the current planning period. Direct and indirect employment based on this facility is 206 persons, population dependence is 393 people.

1 This employment figure differs from figures on PAA Table 5 because only employees covered by unemployment insurance were included in the table, while many small operations not covered by unemployment insurance are included in this figure. In addition, 140 employees of the Nevada Cement Company in Lyon County are included in this figure.

2 Employment multiplier for metallic minerals is 1.182; income multiplier, 1.242; employment multiplier for non-metallic minerals, 1.474; income multiplier, 1.146. For an explanation of multipliers see Water for Nevada, Special Report Input-Output Economic Models 1974.

Employment figures do not differentiate between private and public land; therefore, it is difficult to gauge what percentage of employment will be derived from future mineral extraction on public lands. At present a large percentage of the mining and milling of locatable minerals occurs on private lands. The degree to which these activities will be diverted to public lands in the future is unknown. However, it can be assumed that by the year 2000, mineral commodities currently extracted from private lands will be greatly depleted. As a consequence, similar resources, some already known and others yet to be discovered on public lands, will play an even more important role in terms of employment.

B. Salable Commodities

BLM Policy and Responsibility

The Bureau has complete control over disposition of salable mineral materials to individuals, companies or government agencies. Furthermore, the Bureau can and does control the methods of material site access and location, and stipulates the method and manner of site rehabilitation upon completion of material removal.

The Bureau has the responsibility to provide for salable materials that will serve the public good. The demand for sand and gravel is present and continuing. The Bureau should designate and develop community sand and gravel pits. The extraction of other salable commodities, such as stone, semi-precious gems and stones (where not a locatable resource), should be allowed within the framework of good land management principles.

Resource Evaluation and Market Analysis

Sand and gravel are high-bulk, low-value mineral commodities. Transportation costs can add significantly to overall costs if the product is transported a substantial distance, consequently local sources are important to the area's construction industry. Sand and gravel production statistics for the area are withheld in order to prevent disclosure of confidential data from individual producers.

Public land is an important source of sand and gravel for the county. In 1979 an estimated 25,000 cubic yards of sand and gravel were extracted from pits within the resource area. The Pershing and Washoe County Road Departments use large quantities of sand and gravel for county road maintenance. In 1979 these departments used 21,590 cubic yards for this purpose and 44 percent of the material was from public land.

The Nevada State Highway Department also uses sand and gravel for road and highway maintenance (particularly on Interstate 80), and 2,700 cubic yards were used in 1979 all from public lands. The 2,700 cubic yards represents the sand and gravel requirements for a normal annual maintenance schedule. Major resurfacing projects are required every 8-12 years. Resurfacing requires 2,893 cubic yards of sand and gravel per mile of two lane highway (based on average highway sand and gravel dimension requirements of 3-1/4 inches thick x 38 feet wide + 4 foot gravel shoulders on each side).

The demand for sand and gravel is related to population growth. Although no data are available for total production within the resource area, projections for public land production can be made if it is assumed that per capita production remains the same. Population in the resource area is expected to increase 28 percent, based on the Pershing County rate between 1979 and 1990. At the current per capita production rate of seven cubic yards per person, approximately 32,000 cubic yards will be needed in 1990. At an overall level of reliance on public land of 49 percent, approximately 15,680 cubic yards will be needed from public land in 1990. The amount and location of existing sand and gravel resources on public land is difficult to estimate. An aggregate exploratory program is a needed facet of the BLM minerals program which, as yet, has received little attention.

Employment and Population Dependence

At present 14 persons are employed in the production of sand and gravel in Pershing County. At current production rates approximately 18 persons would be employed in the industry by 1990. The market value of aggregate extracted from public lands was \$45,000 in 1979 (computed at \$1.50 per cubic yard). Using the output multiplier for the sand, gravel, clay, and stone sector (derived by the Nevada State Engineer's Office,) the total output generated by extraction of sand and gravel from public land is \$57,206.

C. Leasable Minerals (Oil, Gas, Geothermal, etc.)

BLM Policy and Responsibility

The United States, through the Mining and Minerals Policy Act of 1970, is currently involved in establishing long-term policy that is geared toward ensuring that the national economy continues to have abundant supplies of minerals at reasonable cost, within the confines of environmental protection, and at acceptable levels of national security. In carrying out this policy, it is the BLM's responsibility to make public lands available for mineral leasing. In addition to offering lands for mineral leasing, the

BLM is responsible for the expeditious processing of prospecting permit applications, lease and rights-of-way applications, and plans of operation. It is also the BLM's responsibility to ensure that the closing of public lands to all forms of mineral entry occurs only when it has been determined that the best use of the land is for some purpose other than the exploitation of mineral resources. Even then, such a closure should be made only when the negative impacts of exploration and mining activities cannot be adequately mitigated.

Resource Evaluation and Estimates

1. Oil and Gas

Only widely scattered areas in the Resource Area have been classified by the U.S. Geological Survey as prospectively valuable for oil and gas. Prospectively valuable areas include Pumpnickel Valley in the northeast corner of the resource area, an area around Double Hot Springs north of Gerlach and the extreme western boundary of the resource area in the Buffalo Hills Planning Unit.

Oil was recently reported to have been discovered in an area of Pumpnickel Valley just outside the boundary of the resource area. The quantity and quality of the oil is unknown, however several new leases have been granted in the Sonoma-Gerlach side of Pumpnickel Valley and indications are that drilling will begin sometime in the not-too-distant future. There are a total of 18 oil and gas leases in the resource area, none of which have produced any oil or gas. To date there has not been any oil or gas production in the resource area. The area in Pumpnickel Valley appears to have potential and may encourage exploration in other sections of the resource area.

2. Sodium and Potassium

Many of the valleys in the resource area have been classified by the U.S. Geological Survey as prospectively valuable for sodium and potassium. This classification is probably based on the fact that these elements occur as concentrated salts in many intermontane basins characterized by internal drainages. There has been some production of potassium in the past but there are no operations in existence today. The resource area has one prospecting permit application for an area near Winnemucca Lake on the far west side of the unit, but there is no activity on this at present.

3. Geothermal

There are fourteen known Geothermal Resource Areas (KGRAs) in Sonoma-Gerlach. (See PAA Table 7 for geothermal data.) Only one of these areas has been developed. Geothermal Food Processors, Inc. has built the nation's first geothermal vegetable dehydrating plant at Brady's Hot Springs about halfway between Lovelock and Fernley on Interstate 80. In its first full year of operation (1979) the plant used geothermally heated air to produce 4 - 4.5 million pounds of dehydrated vegetables. The plant operates during the harvest season, at which time it operates seven days a week, 24 hours a day, and employs a maximum of about 80 persons.

Geothermal resources are useful for electrical generation, space heating, air conditioning, and product processing. Geothermal waters from springs and wells are widely used for bathing, recreation and therapeutic purposes. By-products of some geothermal electrical generation systems include desalinized water and several important minerals such as sulfur, mercury, and lithium salts. Hot springs in the resource area have been used by Indians and early white settlers for drinking, bathing, cooking, and watering stock.

Economic reserves of geothermal resources generally require a subsurface temperature above 90°C. (194°F.). (See PAA figure 1 for temperature data.) Systems with temperatures ranging from 90°C. to 150°C. (194°F. -302°F.) may be useful for space heating and product processing, while systems with temperatures greater than 150°C. (302°) may be useful for electrical generation.

Geothermal resources are similar to other energy resources in that until actual exploration and development begins it is difficult to quantify reserves and the development measures necessary to begin production. As a consequence quantitative data is lacking on geothermal energy in the resource area as it is in most of the western states. A few studies have been conducted for hot spring areas in the western United States (White 1975). Included in these studies are crude estimates of the electrical generating potential of seven geothermal sites in the Sonoma-Gerlach Resource Area. These estimates are based on many assumptions, one being that 25 percent of the thermal energy contained in these areas is recoverable as electrical energy. (See PAA Table 8.) This table also estimates the potential yearly dollar value of electricity produced by each KGRA based on current electrical rates in the Winnemucca area (February 1980).

SONOMA GERLACH RESOURCE AREA GEOTHERMAL DATA

KNOWN GEOTHERMAL RESOURCE AREA HOT SPRINGS	LAND OWNERSHIP PUBLIC (acres)	PRIVATE (acres)	PERCENT PUBLIC LAND	SURFACE TEMPERATURE °C. (°F.)	SUBSURFACE TEMPERATURE °C. (°F.)	VOLUME (KM ³)	HEAT CONTENT (CALORIES)	ELECTRICAL POTENTIAL MwC/30 yrs.	DISTANCE FROM EXISTING POWER LINES (miles)
Double Hot Springs KGRA	27,111	520	98						
Double Hot Springs				80 (176)	140 (284)	12.2+ 4.2	0.884x10 ¹⁸		
Near Black Rock				90 (194)	122 (252)	3.3+ 0.9	0.244x10 ¹⁸		
Gerlach KGRA**	21,327	1,760	92						
Great Boiling Spring				86 (187)	170 (338)	3.3+ 0.9	0.349x10 ¹⁸	32	3
Soldier Meadows KGRA	3,966	2,000	66						
Soldier Mlws. Hot Spring				54 (129)	115 (239)	12	0.7x10 ¹⁸		
Trego KGRA**	7,013	0	100						
Butte Springs				84 (187)	124 (255)	3.3+ 0.9	0.215x10 ¹⁸		
San Emidio Desert	5,898	1,780	77						
San Emidio Hot Springs				95 (205)	185 (365)	3.3+ 0.9	0.325x10 ¹⁸	28	1
Fly Ranch KGRA	13,369	4,400	75						
Fly Ranch Hot Springs				80 (176)	100 (212)	4.4+ 1.3	0.268x10 ¹⁸		
Brady Hazen KGRA	32,043	44,800	42						
Brady Hot Springs**				98 (208)	155 (311)	30	3.6x10 ¹⁸	396	8
Desert Peak Area**				*	225 (437)	52+ 18	6.92x10 ¹⁸	750	11
Dixie Valley KGRA	11,324	160	99						
Sou Hot Springs				73 (163)	114 (237)	3.3+ 0.9	0.167x10 ¹⁸		
Hot Spr. Ranch (Tipton)**				85 (185)	180 (356)	2.25	0.2x10 ¹⁸		
Buffalo Valley Hot Sprgs.				79 (174)	135 (275)	5.7+ 2.0	0.399x10 ¹⁸		
Colorado Area KGRA	640	0	100	*	101 (214)	3.3+ 0.9	0.268x10 ¹⁸		3
Kyle Hot Springs KGRA	2,400	160	94						
Kyle Hot Springs				77 (171)	161 (322)	12.8+ 5.6	1.194x10 ¹⁸	97	2
Leach Hot Springs KGRA	12,206	560	96						
Leach Hot Springs				95 (203)	160 (320)	9.7+ 2.7	0.932x10 ¹⁸	77	2
Rye Patch KGRA	800	0	100						
Humboldt House**				*	230 (446)	3.3+ 0.9	0.435x10 ¹⁸	47	15
Gerlach N.E. KGRA	7,320	0	100	*	200 (392)	N/D	N/D		
Fly Ranch N.E. KGRA	7,680	0	100	*	185 (365)	N/D	N/D		

*Geothermal reservoir does not reach the land surface.

**Close to existing transportation systems.

Source: Sonoma-Gerlach URAs, Geothermal Section, Winnemucca District Files

GEOHERMAL USE TEMPERATURES

SATURATED STEAM

392
374
356
338
320
302
284
266
248
230
212
194
176
158
140
122
104
86
68

200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20

STEAMBOAT

EVAPORATION OF HIGHLY CONC. SOLUTIONS
REFRIGERATION BY AMMONIA ABSORPTION
DIGESTION IN PAPER PULP KRAFT
GERLACH HOT SPRINGS
HEAVY WATER VIA HYDROG. SULFIDE PROC.
DRYING OF DIATOMACEOUS EARTH

TEMP. RANGE
OF CONVENTIONAL ELECTRICAL
POWER PRODUCTION

DRYING OF FISH MEAL
DRYING OF TIMBER

ALUMINA VIA BAYERS PROCESS
ALCOHOL DISTILLATION

DRYING FARM PRODUCTS AT HIGH RATES
CANNING OF FOOD

EVAPORATION IN SUGAR REFINING
EXTRACTION OF SALTS BY EVAPORATION AND CRYSTALLIZATION

WARDS HOT SPRINGS

FRESH WATER BY DISTILLATION
MOST MULTIPLE EFFECT EVAPORATIONS, CONCENTR. OF SALINE SOL.

REFRIGERATION BY MEDIUM TEMPERATURES.
DRYING AND CURING OF LIGHT AGGREG. CEMENT SLABS

THE NEEDLES ROCKS

DRYING OF ORGANIC MATERIALS, SEAWEED, GRASS, VEGETABLES, ETC.
WASHING AND DRYING OF WOOL

SAN EMIDIO DESERT

DRYING OF STOCK FISH
INTENSIVE DE-ICING OPERATIONS

MOANA

DISTRICT SPACE HEATING
GREENHOUSES BY SPACE HEATING

REFRIGERATION BY LOW TEMPERATURE.

ANIMAL HUSBANDRY.
GREENHOUSE BY COMBINED SPACE AND HOTBED HEATING

RESIDENTIAL SPACE HEATING
MUSHROOM GROWING
BALNEOLOGICAL BATHS.

SOIL WARMING

SWIMMING POOLS, BIODEGRADATION, FERMENTATION
WARM WATER FOR YEAR AROUND MINING IN COLD CLIMATES.
DE-ICING

HATCHING OF FISH, FISH FARMING

WATER

Source: Nevada State Geothermal Assessment and Planning Meeting;
Nevada Department of Energy, January 22, 1980

The use of Nevada's geothermal resources to generate electricity has not developed in the past because alternative sources of energy have been inexpensive enough to make development of new technologies economically impractical, and because Nevada's geothermal resources are all highly mineralized. The Geysers KGRA, near Sonoma, California, is the source of the only geothermally powered generating plant in the country. This plant uses steam which has a very low mineral content and consequently can use conventional generating equipment. The mineralized nature of Nevada's geothermal resources requires the development of new technologies before commercial electrical generation can be undertaken (Eadington, Taylor, and Tissier, 1979).

Test wells have been drilled at Desert Peak and other KGRAs in the resource area to evaluate their potential. The Desert Peak Area which is currently not part of a KGRA but which will probably be included in an expanded Brady-Hazen KGRA has the greatest estimated electrical generating capacity of any prospect in northern Nevada. The U.S. Geological Survey estimated that with a water temperature of 400°F., 750MW of electricity could be generated.

Additional labor would be required for the development of geothermal resources for electrical generation. Therefore, additional services would be needed from local communities. Exploration of a potential geothermal field would directly involve about 40 people in drilling, with 10-20 additional service people intermittently involved over a 1-2 year period (Brady Technical Report 1974).

Construction of a 55 MW power plant would take 2-3 years. Drill crews for one or two rigs would number 20-40, and 20-30 additional people would be involved in plant construction. All of the above personnel would be temporary.

Once the field is operating, about five permanent employees would be needed for field production, plus five more for each new power plant. One drilling rig would be needed full time, adding 20 more permanent employees to the area.

A 55 MW power plant is generally considered the minimum size of geothermal plant which meets economic efficiency criteria. A power plant of this size has the capacity to supply a community of approximately 55,000 people. The projected population of Pershing County by the year 2000 is only 4,605, consequently power generated from a geothermal plant would provide surplus power that could be exported out of the region.

PAA TABLE 8

ELECTRIC GENERATION POTENTIAL AND DOLLAR VALUES
OF GEOTHERMAL RESOURCES

GEOTHERMAL AREAS	ELECTRIC GENERATION POTENTIAL 1/	ELECTRICAL RATES 2/	YEARLY DOLLAR VALUE
Gerlach	32MW/30 years	Commercial Residential Agricultural	13,169,434 12,275,213 9,118,810
San Emidio Desert	28MW/30 years	Commercial Residential Agricultural	11,523,254 10,740,811 7,978,958
Brady's Hot Spring	157MW/30 years	Commercial Residential Agricultural	64,612,534 60,225,263 44,739,160
Desert Peak	750MW/30 years	Commercial Residential Agricultural	308,658,600 287,700,300 213,722,100
Leach Hot Springs	77MW/30 years	Commercial Residential Agricultural	31,688,950 29,537,231 21,942,136
Kyle Hot Springs	97MW/30 years	Commercial Residential Agricultural	39,919,846 37,209,239 27,641,392
Humboldt House	47MW/30 years	Commercial Residential Agricultural	19,342,606 18,029,219 13,393,252

1/ Source: Sonoma-Gerlach URAs, Geothermal Section, Winnemucca district files.

2/ Source: Electric rates CP National, Winnemucca, Nevada, February 1980

Commercial = \$0.04698/Kw hr. Residential = \$0.04379/Kw hr.
Agricultural = \$0.03253/Kw hr.

A rate increase of unknown proportions is expected in March 1980.

Sierra Pacific Power and a consortium of several other northwest utility companies are presently studying the feasibility of constructing a pilot 20-55 megawatt electrical generating plant in western Nevada, using geothermal steam. One of the five proposed sites is located in the Brady-Hazen KGRA. Construction will likely begin within two years, providing that the feasibility study shows favorable results.

The average yearly residential heating cost for the Winnemucca area runs about \$30 per month, using natural gas (Southwest Gas, February 1980). Comparatively, heating cost using fuel oil would run about \$57 per month and propane about \$54 per month. Electrical heating cost would likely run \$75 to \$90 per month on an average.

The Oregon Institute of Technology is presently being heated by the direct use of geothermal hot water. The average cost of heating, per square foot of building space, using geothermal hot water, is \$.05/sq. ft./month compared to \$.50/sq. ft./month using conventional fuel oil (Geo-Heat Utilization Center Quarterly Bulletin, May 1977).

The above cost figure includes the annual operating expense plus the capital recovery on the present cost of the geothermal wells.

Using these figures, a home heated in Winnemucca or Lovelock by fuel oil at an average rate of \$57 per month, could be heated for \$5 to \$6 per month using geothermal hot water.

It should be noted that costs may vary greatly from area to area. Factors which must be considered include temperature of the geothermal reservoir, depth, and water chemistry.

One company active in geothermal exploration and development in Nevada estimates that it could supply large-volume users of heat, such as food processors, with geothermal energy at approximately 66 percent of the cost of natural gas. Several KGRAs in the resource area have temperatures which are too low for generation of electricity but may be useful for other purposes. KGRAs identified as having good potential for nonelectric purposes include Double Hot Springs, Gerlach N.E., Trego, Fly Ranch, Fly Ranch N.E., Soldier Meadows, Colado, Rye Patch and Dixie Valley.

The estimated land ownership statistics presented in PAA Table 7 indicate that there are approximately 209,000 acres of known geothermal resource areas in Sonoma-Gerlach. This figure represents approximately one-third of all known geothermal resource areas in Nevada. Public land accounts for 73 percent of the KGRAs in the resource area. Consequently the BLM can play an important role in their development.

Employment and Population Dependence on Public Land

Much of the private land in areas with surface manifestation of geothermal energy, i.e., hot springs, has already been leased for geothermal resources. Most of the public land is available for leasing and as of 1979 a total of 161 geothermal leases had been issued in the resource area, 41 percent of all BLM geothermal leases in Nevada.

There are two types of geothermal leases: competitive and noncompetitive. Competitive leases are issued on areas known to contain valuable geothermal resources (KGRAs). These leases are offered at public auction and persons or companies interested in these areas bid an amount of money, called a bonus bid, for the right to lease and develop the geothermal resources. They also pay a yearly rental fee, or royalty on any energy produced. Noncompetitive leases are issued on all acreage outside KGRAs. No competitive bidding is required and no bonus bids are needed. As of 1979 there were a total of 32 competitive leases (48 percent of the state total) and 129 noncompetitive leases (39 percent of the state total).

Revenues

Fifty percent of the receipts from lease rentals, bonus bids and royalties are paid to the State of Nevada. Rental fees for noncompetitive geothermal leases are initially \$1/acre/year, but will increase on a graduated basis after the fifth year. To date (January 1, 1980) the 129 noncompetitive leases issued in the resource area yield \$180,321 annually. The 39 competitive leases have yielded \$528,244 in bonus bids, most of which (\$340,780) was received in 1979. An additional \$165,226, based on a fee of two dollars per acre, is paid as yearly rental on competitive leases. On the basis of these figures, receipts paid to the state from geothermal leasing in the Resource Area amounted to \$343,164 in 1979.

Royalties on production represent an additional source of revenue. Royalties of 10-15 percent of the value of the heat energy, and up to 5 percent of the mineral by-products and demineralized water are assessed by the federal government. At the Geysers steam field in California, a royalty of 10 percent of the steam value is paid to private landowners. The royalty averages about \$250,000 per year per 100 MW plant (Brady Technical Paper, 1974).

Taxes on production also generate revenue. Taxes paid to Sonoma County, California, from the Geysers approximated \$1 million per year for the 400 MW plant in 1974 (Brady Technical Report, 1974).

Minerals Sector Income And Employment

Income generated by the mining industry in Pershing County is estimated at 1.8 million dollars, thirteen percent of total county income. The contribution of public land to the total is important but is unknown due to the desire by individual miners to keep their data confidential. The nature of current mining law allows the locatable minerals industry to patent profitable mining claims. The patent process converts claims located on public land into private property. Many claims will not be patented, however, because unpatented claims are not subject to property taxes.

The primary value of public land to the mineral industry is as a raw material site upon which the prospecting process can occur. The prospecting process results in the discovery of new ore deposits, which in turn become the source of future mineral production. Open access to public land is the means by which the process leading to production is initiated.

Dependency by the salable minerals industry on public land is high. Salable mineral sites are not patented; extraction occurs primarily on public lands. Much of the dependence on public lands for sand and gravel is derived from the fact that most county, state and federal highway construction in the region is dependent on sand and gravel for construction purposes (Fellows et al, 1974). Leasable minerals are similar to salable in that sites are not patented, they are leased but remain under the administration of the BLM.

Covered employment in the minerals industry of Pershing County was 160 persons in 1977. This figure understates the actual employment because of the large number of small operations not covered by unemployment insurance. An additional 150 persons are estimated to be employed by the mineral industry in the Washoe County sector of the resource area. Total employment, both direct and indirect, based on multipliers from the input-output models in the Water for Nevada series of reports, is 429 persons.

SONOMA GERLACH MINERAL PRODUCTION

COMMODITY, UNIT	PRODUCTION		NUMBER OF OPERATIONS	1/ EMPLOYMENT	1/ RESERVES	KNOWN OCCURRENCE ON PUBLIC LAND
	TOTAL	PUBLIC LAND				
<u>LOCATABLE</u>						
Gold Oz. 2/	411		9	36	Unknown	Yes
Silver Oz. 2/	6,578		5	28	Unknown	Yes
Zinc short tons 2/	4			-	Unknown	
Tungsten			12	81	Unknown	Yes
Diatomite			1	125	30-40 yrs.	Yes
Lead short tons 2/	7		2	1	Unknown	
Gypsum			1	150	80 yrs.	
<u>LEASABLE</u>						
Oil and Gas	-	-	-	-	Minor	No
Geothermal						
Direct Applica- tion 3/	30Km ³		1	80	164+40Km ³	Yes
Electrical- Megawatts	-	-	-	-	1,427MWe	Yes
Saline Playa Products 4/	-	-	-	-	Some 1/	Yes
<u>SALABLE</u>						
Sand and						
Gravel Yds 3. 5/	25,000	Yes	4	14	Unknown	Yes
Clay			1	1	Unknown	Yes
Limestone			1	2	Unknown	Yes
Dolomite						

1/ Employment and number of operations figures reflect those presented in the Directory of Nevada Mine Operations Active During Calendar Year 1977. These figures include operators as well as employees not covered by unemployment insurance.

2/ Represents 1975 production figures, source, U.S. Department of Interior, Bureau of Mines Minerals Yearbook "The Mineral Industry of Nevada", 1975.

3/ The Brady Hot Spring vegetable processing plant uses geothermal heat from a KGRA with a volume of 30Km³ and employs about 80 persons at full operation. Sonoma-Gerlach URAs Geothermal Section, Winnemucca District files.

4/ There are many playa basins in the resource area which are classified as prospectively valuable for sodium and potassium but reserves are not quantified.

5/ Sand and gravel figures represent 1979 data, source Vic Dunn, Bureau of Land Management, Winnemucca District Geologist, 1980.

Population dependence, based on the population employment ratio for Pershing County is 948 persons. Minerals industry statistics in the resource area are presented in PAA Table 9.

Projections

The resource area's mining industry has been affected by several boom and bust periods during its history. The unpredictable nature of these periods makes projections about future mineral activity speculative at best. Projections derived from the Pershing County General Plan appear in PAA Table 10.

The opening of a major limestone plant for cement production in 1981 is the only source of future mineral production known with certainty in the resource area. A plan of operation submitted to the Winnemucca District office indicates that the operators intend to employ 200 persons during construction phase and 100 during the operation phase. Production is estimated at 500,000 tons of cement per year. The market area for the cement is prospectively in the western Nevada and northeastern California area. Mineral claims cover approximately 1,800 acres of public land that are potentially valuable for high grade limestone.

Due to the increasing cost of energy it is probable that designation of areas for additional gravel pits will be required. Increasing energy costs add substantially to the cost of sand and gravel. Closer spacing of pits should help to offset these costs.

PAA TABLE 10

PERSHING COUNTY ESTIMATED FUTURE MINERAL PRODUCTION STATISTICS (Yr. 2000)

COMMODITY AND UNIT	POTENTIAL TOTAL/YR.	PRODUCTION PUBLIC LAND	POTENTIAL NUMBER OF MINES OR MINERAL OPERATIONS	POTENTIAL NUMBER OF PERSONS ENGAGED IN MINING	IMPACT ON PUBLIC LANDS
LOCATABLE					<u>1/</u> <u>2/</u>
Gold, Silver (tons of ore)	200,000	Yes	1	120	
Iron Ore (long tons)	500,000	Yes	2	127	
Mercury (flasks)	10,000	Yes	1	114	
Tungsten (tons)	1,600	Yes	1	320	
Diatomite (tons)	30,000	Yes	1	126	
Flourspar (tons)	80,000	Yes	1	80	
Limestone (tons of cement) <u>4/</u>	500,000	Yes	1	100	
LEASABLE					<u>3/</u>
Oil and Gas		Yes			
Geothermal	Unknown				
Direct Application		Yes			
Electrical Megawatts	1,427	Yes			
Saline Playa Products		Yes			
SALEABLE					
Sand and Gravel (tons)	32,000	Yes	Unknown	18	
Clay (tons)	20,000	Yes	1	4	
Stone (tons)	360,000	Yes	3	100	

1/ Public lands will probably be patented under the 1872 Mining Law.

2/ Public lands may be required for mill sites and rights-of-way.

3/ Public lands will be leased for production.

4/ Sand and gravel projections based on population increase.

Source: Pershing County General Plan, 1974

Plan of Operation filed by Falcon Cement Company with Bureau of Land Management, Winnemucca District 1980.

D. Public Attitudes and Social Values

Mining and prospecting are important to residents of the Sonoma-Gerlach Resource Area. Mining is talked about more than any other resource, except wilderness, and the main reason for the interest in wilderness is its potential impact on prospecting and mining.

The largest mining operations in the area are for the Eagle-Picher Company near Lovelock and for U.S. Gypsum at Empire. Together these two mining and manufacturing operations provide about 275 jobs. The other mining operations in the resource area are small, employing only a few people.

Utah International has announced the re-opening of the tungsten mine near Imlay. When fully operational, it should employ about 200 people.

In addition to the jobs provided by mining, many other people are involved with prospecting for minerals or in financing other prospectors.

Much of the tremendous amount of opposition to the wilderness program in Pershing County seems to flow from a group of prospectors--many of them part-time prospectors. The Pershing County Concerned Citizens group--formed to fight the BLM wilderness program--is mostly part-time prospectors, many now retired from full-time jobs.

This Concerned Citizens group is highly vocal and hard working, as evidenced by the signatures they obtained on an anti-wilderness petition. These people believe their mining and prospecting work is important to the future well-being of the country. Whether or not they are accurate, they believe what they say. And the members of the Concerned Citizens group are busy and persistent letter writers.

Local residents say the city people don't know where the raw materials for industry come from, nor do they understand the costs of clean-up.

Not everyone in the Sonoma-Gerlach Resource Area is enthusiastic about mining, however. Unionville residents are opposed to any sort of development in the Buena Vista Valley. Some ranchers resent the relative freedom of access which the miners and prospectors have. Other ranchers say mining operators make no attempts at restoring the land to its former condition. Another person complained about the lack of control over miners and prospectors--no way to make them clean up their messes before they move on.

Aside from the objections about potential wilderness areas, the only other complaint about the BLM concerned the length of time the patent process takes. This comment was from a county official.

Before 1979 most mining claims in Pershing County were small and mostly filed by people living in the region--Nevada, California or Oregon--according to the county recorder. In 1979 claims were larger and more numerous than in previous years and also more out-of-state companies filed claims.

Large areas are being filed on for geothermal testing also, said the Pershing County Recorder, and mostly by the large oil companies. Geothermal steam is already being used commercially to dry vegetables in the southwest part of the Sonoma-Gerlach Resource Area.

One Gerlach land-owner favors geothermal development and most residents of the area seemed enthusiastic about the possibilities of geothermal energy. A few ranchers said they didn't want any development of anything within their own visual range, but those were the only specific complaints. Most ranchers interviewed were not enthusiastic about any kind of industrial development in their own areas. No specific mention was made by local residents of the Black Rock Desert for geothermal use. Two members of the Committee for the Emigrant Trail National Monument object to any geothermal development within sight of the Applegate-Lassen Trail.

Much land in the Fernley area has been leased for geothermal testing. A realtor in Fernley said most people in the area are in favor of geothermal development even if it does dislocate some wildlife. "After all" he said, "there's plenty of places where they [wildlife] can go. It isn't as though we were in the middle of a metropolitan area."

Lovelock people who are encouraging new industry are especially excited about geothermal steam as a cheaper source of energy for industry. One person hoped that, if sufficient energy could be obtained from geothermal sources, more gasoline would be available for cars.

The following is excerpted from the Paradise-Denio PAA:

Local residents do not generally attach high social or cultural values to the mining industry except for the values many seem to place on old mining towns, freight and stage routes and other aspects of the early mining history of Nevada. Local people and outsiders alike consider these to be fascinating remnants of the early west.

Economically, the minerals industry is generally considered equally as important as the livestock industry as a provider of local jobs and as a contributor to the national requirement for mineral resources. It is not regarded to be a dependable contributor to the local economy, however. Getchell Mine was quoted as an example of a mine which was going strong one day and closed down the next. One positive aspect of the mining industry which was commented on was that when a mine closes down the miners depart rather than remaining in town and creating problems for the community.

The reopening of the mine at Tungsten is generally considered by Winnemucca residents to be beneficial to the community.

Several persons interviewed expressed a distaste for the scarring of the landscape associated with prospecting and to a lesser degree mining. Revegetation was recommended as a possible solution to the environmental disturbance caused by mining related activities.

Forest Products

A. Analysis

Stands of aspen, mountain mahogany, Utah juniper, and pinyon pine are found in the resource area. Total and public land acreage estimates are presented in PAA Table 11. The estimates of forested acreage on public land are based on rough percentage figures derived from URA III overlays.

PAA TABLE 11

FORESTED ACREAGE IN THE SONOMA GERLACH RESOURCE AREA

Species	Total Acres	Public Land Acres	% Public Land
Quaking Aspen	3,748	2,811	75
Mountain Mahogany	2,877	2,733	95
Pinyon Pine	67,353	63,985	95
Utah Juniper	401,389	321,111	80

Source: Gene Dahlem, BLM Wildlife Biologist, Winnemucca, Nevada, 1978

Forested areas in the resource area are classified as nonproductive forest land.^{1/} Production of forest products is limited to fuel wood, posts, poles and Christmas trees. These products are generally not available in sufficient quantity or quality to support commercial usage. Lovelock and the Gerlach area are the population centers from which demand for products from the resource area is derived. PAA Table 12 presents information on permits issued for forest products within the Sonoma Planning Unit. Only one permit for fuel wood and three permits for a total of 180 juniper posts have been issued in the Blue Wing and Buffalo Hills Planning Units over the past five years.

PAA Table 12

PERMITS ISSUED FOR FOREST PRODUCTS WITHIN THE SONOMA PLANNING UNIT (By Fiscal Year)

<u>Products</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Fuel wood(cords)	43	36	44	64	107
Posts			0	695	150
Christmas trees			413	489	691

Unauthorized cutting of posts and fuel wood is known to occur in the area due to remoteness from district office, past customs, and scarcity of wood permit forms. No estimate of the quantity of forest products removed by unauthorized cutting is available, but is probably substantial in some areas.

^{1/} Sonoma Gerlach URA III 1980.

The inaccessibility and remoteness of forest stands from population centers result in low demand for most forest products in the resource area. The trend in demand for fuel wood permits, however, indicates that this product may become commercially significant in the future.

As the cost of other energy sources has increased, fuel wood as an alternative source of energy has become more attractive. This is supported by the fact that approximately ten percent (60) of the families in Lovelock have purchased wood burning stoves in the past year^{1/}. The majority of these people will obtain their fuel wood supplies from cutting areas within the Sonoma Gerlach Resource Area. The commercial significance of fuel wood in the resource area is also evident in the support it provides to a local wood stove manufacturing company which estimated that five percent of its sales since May 1979 were in the Lovelock area.^{1/} The current rate of increase in fuel wood permits is about 44 percent annually, but whether this rate of increase will be sustained for more than a few years is unknown.

At present, fuelwood harvesting in the resource area is permissible at three areas in the Stillwater Range southeast of Lovelock. Current estimates place the supply of dead and down fuel wood in the three cutting areas at 9,256 cords.^{2/} (This figure overestimates the actual supply, due to unauthorized cutting, unacceptable the actual supply, due to unauthorized cutting, unacceptable quality, and inaccessibility.) An additional supply of 9,085 cords of live fuel wood is also estimated to exist in the three harvesting areas. The supply of fuel wood then within this one range should be sufficient to meet even an annual increase in demand of 44 percent at least through 1990. If other sites within the resource area are opened to allow removal of fuel wood, supplies should be adequate to meet all conceivable demand considerably beyond the 1990 planning period.

The demand for Christmas tree permits has also increased substantially. Supply estimates (see PAA Table 13), however, indicate that the Christmas tree resource is almost inexhaustible, particularly when the replacement trees that grow into the ranks each year are also considered.

PAA TABLE 13

WOODLAND PRODUCTS AVAILABLE FOR HARVEST
WITHIN THE STILLWATER HARVESTING AREA IN 1980 ^{2/}

<u>Christmas Trees</u>	<u>Dead and Down Firewood</u>	<u>Live Firewood</u>	<u>Fence Posts</u>
18,407	9,256 cords	9,085 cords	17,956

^{1/} Personal communication, Charlie Harrill

^{2/} Gene Dahlem, Stillwater Range Woodland Harvest Management Plan

In general, the large distance of the planning area from major population centers and the more extensive forest stands to the west result in a negligible demand for forest products at a regional level. Even with increased consumption, forest products will probably not be a significant element of the local economy.

B. FOREST PRODUCTS-Public Attitudes and Social Values

Very few people were interested in talking about forest products. Some Lovelock residents were unaware that firewood, Christmas trees or other forest products were even available from the public lands.

Two people in Lovelock said they found their wood in areas that were not public land. One rancher winked and said he had no problem getting wood. A Gerlach man goes to northern California for his wood.

The mayor of Lovelock said some people had complained to him that it took too much time and effort to drive to the BLM District Office in Winnemucca to get the permits, so they simply ignored the rules and took what they needed without permits.

The mayor was unaware, until the interviewer told him, that the County Extension Agent in Lovelock has permit forms which may be completed and mailed to the BLM office for approval.

The following is excerpted from the Paradise-Denio PAA:

The predominant public attitude toward forest products is that the Bureau of Land Management should provide a source of forest products on public lands and should not restrict the locations from which wood can be removed.

RANGE MANAGEMENT

A. Analysis

Livestock production is an important industry in Pershing County. In 1977 it accounted for a bit more than half of total cash receipts in an agricultural industry which was the source of 29 percent of total county income. The livestock industry is of greater importance than this figure indicates because much of the county's crop production is oriented towards producing feed crops which are fed to livestock in the county's one major feedlot operation and for periods when livestock which normally graze on public range are supported on base properties.

In 1979 approximately 21 percent of all crops grown in Pershing County were utilized as sources of feed for livestock within the county.^{1/} Of the roughly 35,000 acres of cropland in the county 13,000 acres are cultivated for alfalfa hay production, 11,000 acres produce alfalfa seed and 11,000 acres are cultivated for the production of grain crops. Approximately one-third of both the alfalfa hay and grain production is retained within the county as livestock feed. Only four percent of the alfalfa seed is estimated to be retained in the county for alfalfa hay production.

The importance of the county's livestock as a component of the agricultural industry has been declining. In 1972 livestock receipts represented 82 percent of total agricultural receipts while in 1977 they accounted for only 54 percent of the total. PAA Table 14 compares the value of livestock receipts with that of crop receipts for a six year period.

PAA TABLE 14

IMPORTANCE OF PERSHING COUNTY LIVESTOCK INDUSTRY 1972-1977

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Crop Receipts (\$1,000)	2,982	5,073	6,562	7,362	7,970	8,131
Livestock Receipts (\$1,000)	13,308	14,425	9,727	9,553	10,318	9,449
Total Receipts (\$1,000)	16,290	19,498	16,289	16,915	18,288	17,580
Livestock as % of Total	82	72	60	56	56	54

Source: U.S. Department of Commerce, Bureau of Economic Analysis, 1979

^{1/} Personal communication, Pershing County Agricultural Extension Agent.

The table indicates that the decline in the importance of the livestock industry is due more to the growth of crop agriculture than to the reduction in livestock. The county's livestock industry, although declining, is an important element of the state's industry. In 1977 the county's cash receipts from marketing meat animals and other livestock was \$9,449,000, which represents 10 percent of the state total.

The 1979 Pershing County livestock population is estimated at 41,000 animals (35,000 cattle and 6,000 sheep).^{1/} The one major feedlot operating in the county processes 20,000 cattle per year, half imported from outside the county and the other half for local customers. Forage requirements for the county's livestock population is 434,400 AUMs.^{2/} Public land within the county contributes 78,517 or 18 percent of these AUMs.

During the summer grazing period (4/1-8/31) dependence on public land increases to approximately 23 percent. This small increase in dependence is characteristic of the Sonoma-Gerlach ranching operations, because many of the operators with BLM grazing privileges will allow their livestock to graze public range on a year-round basis. Those that do remove their livestock will generally do so for only two months in the winter. Consequently, the high dependence on the BLM for summer forage, which is characteristic of other districts, is not the case in Sonoma-Gerlach because the extended grazing period spreads dependence fairly evenly throughout the year.

Herd size increases to an estimated 54,000 animals (41,000 cattle and 13,000 sheep) when the portions of the Sonoma-Gerlach Resource Area outside the Pershing County boundaries are included in the totals. Forage requirements increase to 523,200 AUMs. BLM forage resources supply 115,562 AUMs indicating a 22 percent overall dependence (based on five year average licensed use) on BLM forage in the resource area. The active preference, the amount of forage (AUMs) that could be authorized each year in Pershing County, is 95,228 AUMs and for the Resource Area in total, 152,447 AUMs.

^{1/} Nevada Agricultural Statistics, 1978

^{2/} AUM (Animal Unit Month), the forage consumed or grazing privileges represented by the grazing of one cow or its equivalent for one month. For the purposes of this definition, one cow shall be considered the equivalent of one horse or five sheep or five goats (CFR 43 4200.0-5[h]).

If livestock operators were to license up to their full preference, public range would provide 29 percent of the total forage requirements in the resource area. Caution should be used not to infer any significance between authorized use and actual forage consumption. A number of licenses will pay for their full authorizations, but will not make full use of them due to an unfounded fear that authorized nonuse will result in a reduction to their forage preferences.

Approximately 50 percent of the allotments in the resource area are grazed on a year-round basis; the remaining allotments are generally grazed on a ten-month-on and two-month-off basis with the two-month-off period occurring during the winter months. The extended grazing periods provide little or no relief to forage type plant species from grazing pressure during their critical growth stages. As a consequence a number of allotments have been identified which require adjustments to their allowed periods-of-use. These adjustments primarily concern those allotments where the authorized grazing begins too early in the spring. Early grazing has resulted in a decline in the percent composition of perennial grasses (the desirable forage species). Early grazing can result in reduced storage of food material in the roots, which may eventually result in the death of the plant. Only remnants of perennial grasses remain on many of the favorable sites in the resource area.

The declining trend in range conditions (percent composition of perennial grasses) caused the BLM to initiate allotment management plans and to vigorously enforce grazing regulations, particularly in regard to trespass actions. Allotment management plans exist for about 22 percent of the allotments in Pershing County. These plans require that livestock be restricted from a portion of the allotment each year to provide rest and allow forage plants the opportunity to regenerate during the critical part of the growing season.

Several allotments have been identified where the forage demand by grasshoppers, harvester ants, rabbits, ground squirrels, wild horses and burros is excessive. Only the wild horse and burro use is quantified because forage consumption by the other species has not been determined for the resource area as a whole. A wild horse or burro AUM is equivalent to the forage required to feed one cow, at least six months of age, for one month.

In 1977 there were approximately 6,841 wild horses and burros in the Sonoma-Gerlach Resource Area. The annual recruitment rate (annual increase) for these animals is 11 percent a year.

If left undisturbed, there would have been an additional 1,588 wild horses and burros in the resource area by 1979. Roundup operations, however, have prevented the wild horse and burro population from reaching its full potential and the 1979 population was estimated at 6,151 animals, actually less than the 1977 population. Forage requirements for this population are estimated at 73,812 AUMs. The recompilation of the previous range surveys indicate that there are 140,583 AUMs of forage suitable for livestock, wild horses and burros, and wildlife in Sonoma-Gerlach. This figure indicates that in 1979 wild horses and burros consumed 52 percent of the available forage. Until recently, no AUMs were allotted to wild horses and burros in the resource area. Due to a significant die-off of wild horses in the spring of 1977 in Buffalo Hills (which stemmed from overgrazing by livestock, wildlife, and wild horses and burros) approximately one-third of the Buffalo Hills Allotment has been closed to livestock grazing. Reductions were also made for livestock in the Soldier Meadows Allotment in order to meet the forage demands of the wild horses and burros in the area.

Although the BLM has responded to the wild horse and burro situation by allocating some forage to these animals, the current allocation does not come close to reflecting the actual forage requirements of these animals. The result has been competition with livestock for limited forage, which contributes to declining range forage conditions.

B. Local Significance

PAA Table 15 illustrates the contribution of the livestock industry to the Pershing County economy. Five year average licensed use on public land is 78,517 AUMs, 82 percent of the use which could be authorized each year.

The table indicates that the livestock industry is directly responsible for approximately 14 percent of income and 19 percent of employment in the county. Industry multipliers, from the Water for Nevada series of reports, result in income and employment figures, (both direct and indirect) that represent 31 percent of income and 34 percent of employment.

PAA Table 15

Significance of Pershing County Livestock Industry 1977

	<u>County</u>	<u>Public Land</u>
Forage Consumption (AUMs)	415,200	78,517
Income <u>1/</u>	2,080,000	395,200
Percent of County Income	14.87	2.82
Income Multiplier <u>2/</u>	2.10	2.10
Direct and Indirect Income	4,368,000	829,920
Employment <u>3/</u>	246	47
Percent of County Employment	19	4
Employment Multiplier <u>2/</u>	1.8	1.8
Direct and Indirect Employment	443	85

1/ Calculated in terms of the ratio of livestock receipts to total agricultural receipts (0.51) in Pershing County.

2/ Multipliers from Water for Nevada, Special Report, Input-Output Economic Models. 1974.

3/ Determined by dividing livestock industry income by average income per employee in the agricultural sector.

* * *

Population dependence (the number of persons supported) on the livestock industry, based on a population-employment ratio of 2.21, amounts to 544 persons directly and an additional 435 persons indirectly. Of these, a total of 188 persons are directly or indirectly dependent on the public land.

These figures overestimate the true importance of the livestock industry to Pershing County. Discussions with the resource area ranchers have indicated that many purchase their equipment and supplies outside the county. Reno and Winnemucca were identified as commonly used trade centers outside of the Pershing County limits. It is not possible to quantify the importance of these centers but they would certainly cause decrease in the importance of the livestock industry to the Pershing County economy.

C. Additional Analysis

1. Regional Significance

In 1977 the number of licensed AUMs in the Winnemucca District was 261,076: the Sonoma-Gerlach five year average licensed use of 115,562 AUMs represent 44 percent of the total. On a statewide basis licensed use on public land was 1,726,903 AUMs. The Sonoma-Gerlach total represents seven percent of total public land forage in the state.

2. Operator Dependence on the BLM

There are 43 operators in the Sonoma-Gerlach Resource Area with public land grazing privileges. Total herd size of these operators is estimated at 32,700 animals (17,000 cattle, 15,700 sheep).^{1/} Total forage requirements are 241,680 AUMs. The public land provision of 115,562 AUMs of forage indicates that the operators are dependent on the BLM for 48 percent of their forage requirements. Dependence, however, is as high as 90 percent for specific permittees. In general, the larger operations have the greatest percent dependence on public range. Demand for public land forage is slightly greater during the summer. During the period from April 1 to September 1 public land provides 62,080 AUMs, 62 percent of total forage requirements.

An analysis of western Nevada ranching operations was published in 1978 by Burke Mitchell and James R. Garrett of the University of Nevada, Reno. Although this report deals with 1972 data it should be useful as a rough description of ranch operations in the Sonoma-Gerlach Resource Area. The investigators classed the ranches by size and by type of operation. These classes are:

Small - less than or equal to 350 animal units

Medium - more than 350 but less than 800 animal units

Large - more than 800 animal units

Cow-yearling Operation - average number of yearlings is greater than one-fourth the average number of calves

Cow-calf - average number of yearlings is less than one-fourth the average number of calves

^{1/} Estimated by determining the largest number of livestock licensed at any one time by each operator during the 1977-78 grazing season.

Characteristics of the western Nevada cattle ranches are presented in PAA Tables 16 through 21. These tables are taken directly from the study. PAA Table 17 indicates that the range cattle industry was not a profitable one in 1972. Small ranches had a net ranch income of -\$10,990, medium ranches lost \$16,219, and large ranches earned \$33,081. Burke and Mitchell compared their 1972 survey with a similar one done in 1963. They found that costs of the factors of production increased by about 27 percent while receipts increased by only 13 percent, an interesting result considering that western region ranches had almost doubled their investment over the same period and that 1972 was a year of high cattle prices.

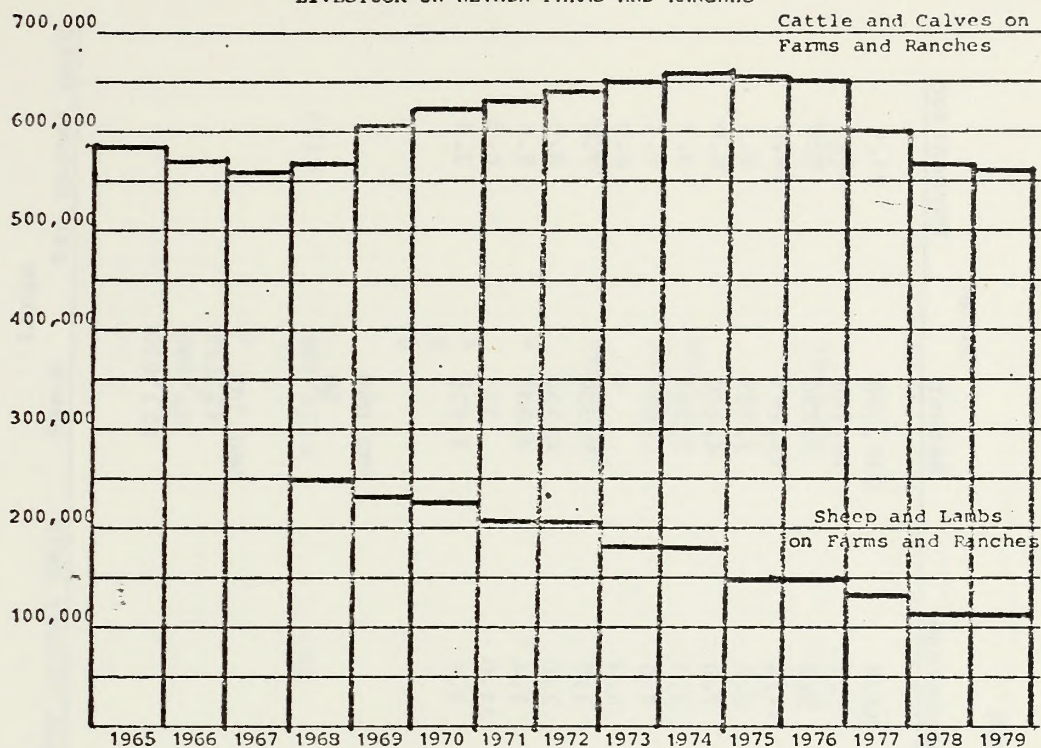
Land values accounted for the greatest proportion of assets to the ranches. Land accounted for 84 percent of total assets for small ranches, while accounting for about 50 percent for medium and large size ranches. Dependence on public range increased with size. This factor would help account for part of the difference in the value of land assets between the small and larger size ranches.

The ability of a rancher to borrow capital is based heavily on the value of his assets. The value of federal grazing preferences are often included when computing the value of total ranch assets. Federal grazing privilege value is based on a ranch's active preference, the total number of AUMs a rancher could license for each year if he were to use all his federal grazing privilege. At present the asset value of one AUM of federal forage is \$35 for good condition range.^{1/} Any adjustment in the level of authorized grazing privileges on public land will result in an adjustment to ranch assets and consequently in the ability of the ranch to borrow capital.

Labor, livestock purchases and depreciation were the greatest expenses for the various size ranches. The cost of BLM grazing permits was a small cost element for the three size classes but increased in importance with increasing ranch size, reflecting the importance of public range to the larger size operations. Expenses per animal unit declined with greater size, evidence of the higher efficiency and economies of scale attainable by the larger operations.

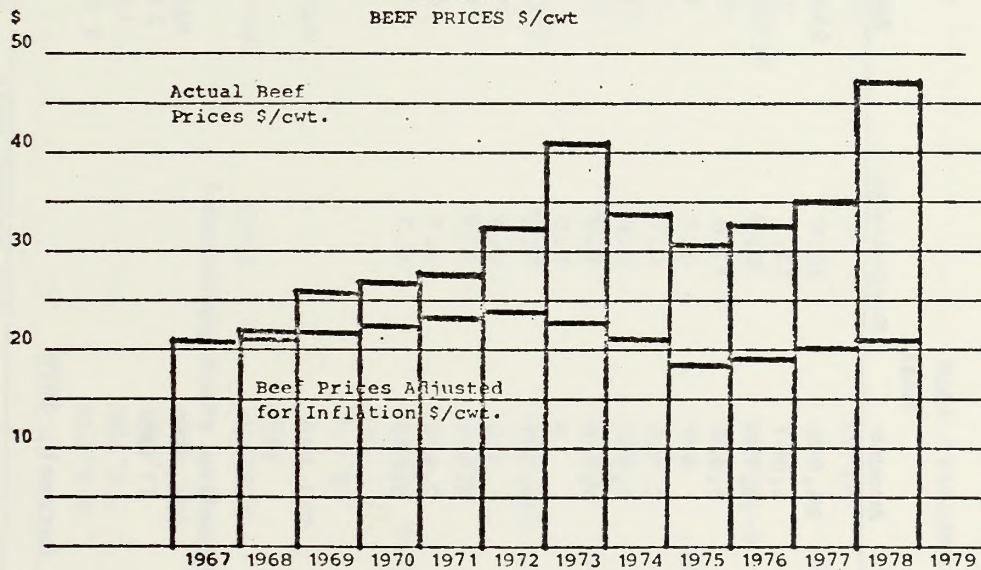
^{1/} Personal communication, John Calendar, 1980

PAA CHART 1
LIVESTOCK ON NEVADA FARMS AND RANCHES



Source: USDA, Nevada Agricultural Statistics, 1969 and 1978.

PAA CHART 2
BEEF PRICES \$/cwt



Sources: USDA, Nevada Agricultural Statistics, 1969 and 1978.
Adjustments for inflation by Grant Loomis, Economist, BLM Winnemucca District Office, 1980

PAA Table 16

Average Operating Expenses by Size of Western Nevada Cattle Ranches, 1972

Expense Item	Small		Medium		Large	
	Amount	Percentage	Amount	Percentage	Amount	Percentage
Labor	\$6,990	22.5	\$14,850	32.8	\$15,250	21.5
Livestock purchases	4,061	13.1	1,402	3.1	10,700	15.1
Repairs & maintenance	2,158	6.9	4,057	9.0	3,550	5.0
Depreciation	3,428	11.0	5,173	11.4	13,281	18.8
Interest	977	3.1	1,426	3.1	2,229	3.1
Gas & lubricants	2,068	6.7	3,150	7.0	4,200	5.9
Feed purchases	1,537	5.0	1,410	3.1	2,591	3.7
Taxes	1,916	6.2	3,183	7.0	5,000	7.1
Custom work	8	0.0	180	0.4	0	0.0
Insurance	1,131	3.6	1,606	3.5	5,500	7.8
Federal grazing fees	150	0.5	1,200	2.6	2,553	3.6
Utilities	1,571	5.1	1,534	3.4	4,000	5.6
Hay & crop expenses	2,022	6.5	4,991	11.0	331	0.5
Miscellaneous	3,023	9.7	1,157	2.6	1,625	2.3
TOTAL expenses						
Per ranch	\$31,040		\$45,319		\$70,809	
Per animal unit	167		91		60	
TOTAL expenses (less breeding stock purchases)						
Per ranch	\$26,979		\$43,917		\$60,109	
Per animal unit	145		88		51	

Source: Mitchell and Garrett, 1978

PAA Table 17

Average Receipts and Income Measures by Size on Western Nevada Cattle Ranches, 1972

Receipt or Income Measure	Small		Medium		Large	
	Ranch	Per animal unit	Ranch	Per animal unit	Ranch	Per animal unit
Livestock Receipts						
Cows @ 245	\$ 4,739		\$ 5,843		\$21,030	
Yearlings	5,726		13,321		57,600	
Calves	13,063		21,072		42,550	
Sheep & wool	445		300		0	
TOTAL livestock receipts	\$23,973	\$129	\$40,537	\$81	\$121,180	\$103
Other ranch receipts						
Crop sales	2,172		0		0	
Custom work	183		4		0	
Miscellaneous receipts	1,400		0		0	
TOTAL other ranch receipts	3,755	20	4	0	0	
TOTAL Ranch Receipts	\$27,728	\$149	\$40,541	\$81	\$121,180	\$103
Receipts less expenses	-3,312	-18	-4,778		50,371	
Change in inventories	-678		-4,441		-10,330	
Net ranch income						
(less \$7,000 charge for operator's labor and management)	\$-10,990	\$-59	\$-16,219	\$-33	\$33,041	\$28
Return on total assets (percent)	-1.61		-3.21		3.11	

Source: Mitchell and Garrett, 1978

PAA Table 18

Land Use and Value of Land Assets on Western Nevada Cattle Ranches, 1972

Item	Ranch Size			Livestock System	
	Small	Medium	Large	Cow-calf	Cow-yearling
Alfalfa (acres)					
Per ranch	145.8	128.4	85.0	148.3	93.3
Range/ranch	0-1150	0-390	70-100	0-1150	0-275
Per AU	.79	.26	.07	.49	.46
Meadow Hayland (acres) 1/					
Per ranch	70.0	202.1	950.0	166.6	66.7
Range/ranch	0-560	0-670	600-1300	0-1470	0-220
Per AU	.38	.41	.81	.50	.33
Irrigated pasture (acres)					
Per ranch	173.5	449.4	310.0	246.0	202.5
Range/ranch	0-1100	0-800	200-420	0-1100	0-375
Per AU	.94	.90	.26	.74	.99
Range (acres)					
Per ranch	380.2	837.9	5300.0	850.4	360.0
Range/ranch	0-4500	0-3427	3600-7000	0-7000	0-1710
Per AU	2.05	1.68	4.51	2.57	1.76
Total (acres)					
Per Ranch	769.5	1617.8	6645.0	1411.3	722.5
Range/ranch	0-4810	290-4571	4470-8820	43-8820	0-2300
Per AU	4.15	3.25	5.65	4.26	3.53
Value of land assets					
Per ranch	\$572,507	\$284,350	\$666,000	\$428,729	\$955,025
Range/ranch	3,700-	242,000-		37,000-	4,090-
	2,080,600	326,000	2/	1,484,000	2,080,600
Per AU	3,086	571	566	1,295	4,668

^{1/} Includes small amounts of other hayland (oat, etc.)^{2/} Data for investment in land for one ranch only.

Source: Mitchell and Garrett, 1978

PAA Table 19

Summary of Total Ranch Assets on Western Nevada Cattle Ranches, 1972

Investment Item	Ranch Size		Large	Livestock System	
	Small	Medium		Cow-calf	Cow-yearling
Buildings & Equipment					
Per Ranch	\$48,064	\$58,671	\$87,350	\$54,511	\$43,450
Per AU	259	118	74	165	212
Land					
Per Ranch	572,507	284,350	666,000	428,729	955,025
Per AU	3,086	571	566	1,295	4,668
Livestock					
Per Ranch	59,974	162,000	402,793	108,773	65,550
Per AU	323	325	342	329	320
Total					
Per Ranch	\$680,545	\$505,021	\$1,156,143	\$592,013	\$1,064,025
Per AU	3,669	1,013	983	1,789	5,201

Source: Mitchell and Garrett, 1978

PAA Table 20

Breeding Practices and Performance Measures on Western Nevada Cattle Ranches, 1972

Breeding Practices Performance Measures and Ranch Size		Units	Breeding Practices Performance Measures and Ranch Size		Units
Calving percentage			Weaning weight		
Small	69		Small	451	
Medium	64		Medium	393	
Large	68		Large	420	
Cow-calf	68		Cow-calf	433	
Cow-yearling	67		Cow-yearling	458	
Cow-bull ratio			Cow cull age		
Small	24		Small	8	
Medium	27		Medium	10	
Large	20		Large	N/A	
Cow-calf	23		Cow-calf	9	
Cow-yearling	29		Cow-yearling	8	
Replacement percentage			Years bulls kept		
Small	18		Small	4	
Medium	7		Medium	4	
Large	12		Large	4	
Cow-calf	15		Cow-calf	4	
Cow-yearling	16		Cow-yearling	3	

Source: Mitchell and Garrett, 1978

PAA Table 21

Average Hay Yields on Western Nevada Cattle Ranches, 1972

Ranch Size and Livestock System	Yields in tons per acre	
	Native Meadow Hay	Alfalfa Hay
System		
Cow-calf	2.3	3.6
Cow-yearling	1.9	4.4
Size		
Small	2.5	3.8
Medium	1.7	3.5
Large	1.8	4.5
Overall Average	2.3	3.8

Source: Mitchell and Garrett, 1978

D. Current Trends and Demand Projections

The cattle industry is characterized by cyclical trends in cattle numbers (see PAA Graph 1). These cycles occur in response to beef prices (see PAA Graph 2). The two factors, cattle numbers and beef prices, are intricately related; as prices increase, so do cattle numbers, eventually the supply of beef is greater than the demand for beef causing prices to decline, and cattle numbers to fall in a corresponding fashion. At the point where demand again exceeds supply, prices climb and a new cycle begins.

The charts on page 68 indicate that there is generally a lag of about a year in the response of cattle numbers to beef prices. The figures for 1973, however, represent a special case. In 1973 President Nixon clamped a price freeze on beef in response to growing consumer protests to high beef prices. During this same time period the United States began selling grain to the Soviet Union, resulting in higher domestic grain prices and causing many feed lots to fold. The cattle industry responded to the President's price freeze by withholding their cattle from the market. The closure of many feedlots meant that fewer cattle were being purchased from the range cattle industry for finishing in the lots. The result was record cattle numbers in 1974.

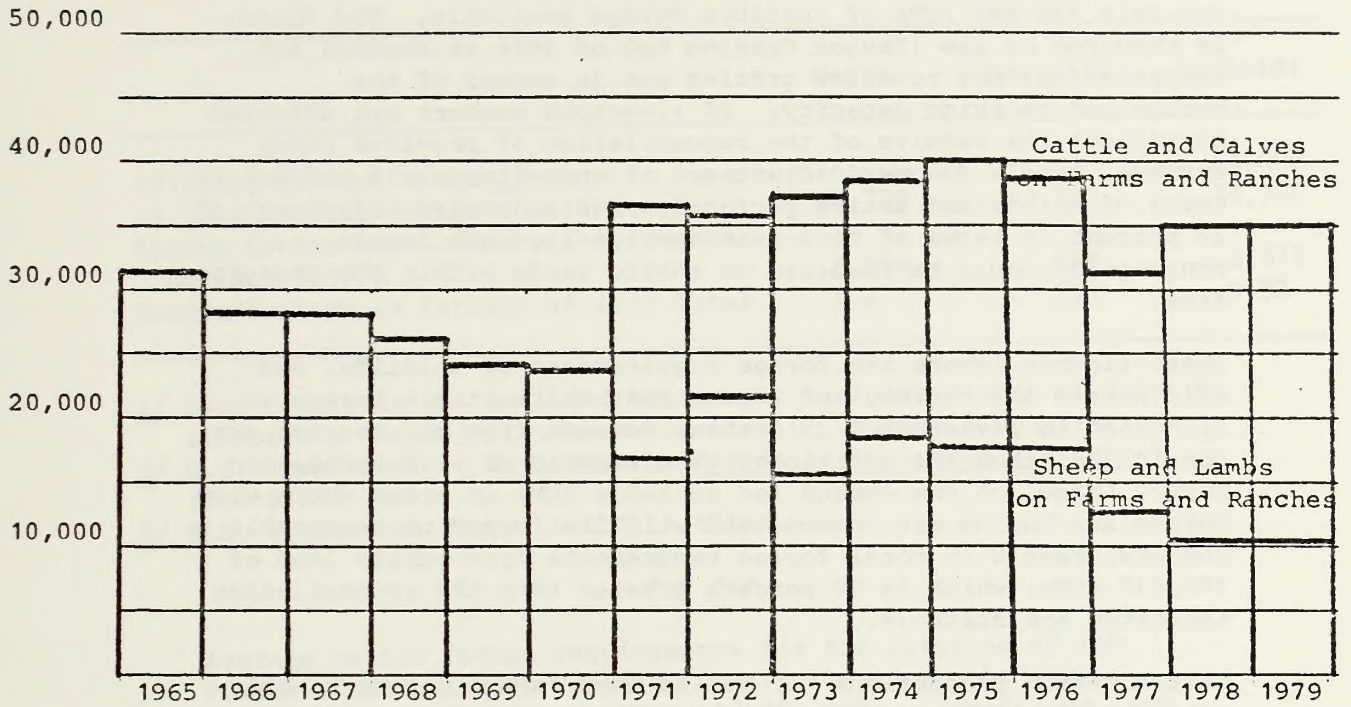
Eventually the cattle industry could no longer afford to hold their cattle off the market and was forced to sell, resulting in a glut of beef on the market that exceeded the demand and drove beef prices down to mid 1960 levels. These low prices remained through 1977, but then began to climb and currently exceed the high prices of 1973. Indications from the U.S. Department of Agriculture are that cattle numbers are responding to the climb in prices and should be significantly higher in 1980.

E. Local Demand

The trend in cattle numbers at the Pershing County level reflects that of the national and state levels (see PAA Graph 3). The Pershing County cattle population has, since 1965, generally represented about six percent of the state population. The 1978 population of the Sonoma-Gerlach Resource Area represented seven percent of the state total.

PAA CHART 3

LIVESTOCK ON PERSHING COUNTY FARMS AND RANCHES



Source: USDA, Nevada Agricultural Statistics, 1969 and 1978.

The number of authorized AUMs (active preference) in the Sonoma-Gerlach Resource Area is 152,447 AUMs; licensed use, however, has averaged 115,562 AUMs over the past five years. The recompilation of the previous range surveys indicate that there are only 140,583 AUMs of suitable forage available. The Bureau is required by law (Taylor Grazing Act of 1934 as amended and supplemented) not to allow grazing use in excess of the recognized carrying capacity. If livestock numbers are adjusted to reflect the results of the recompilation of previous range surveys, then a downward adjustment of approximately 8 percent in terms of authorized active preference and an upward adjustment of 22 percent in terms of five-year average licensed forage consumption would be required on public lands within the resource area.

These figures ignore the forage requirements of wildlife, and wild horses and burros, and assume that all suitable forage is allocated to livestock. If present demands from all sources are considered, then the additional requirements of wild horses and burros (based on the demand for suitable AUMs in areas where wild horses and burros are common) and wildlife (based on reasonable numbers) result in total forage requirements from public land of 195,017 AUMs, which is 39 percent greater than the recompilation indicates are suitable.

Cattle demand projections for public land forage can be roughly estimated if it is assumed that the 15 years of data available for Pershing County are sufficient to derive an average population which considers the fluctuations in cattle numbers resulting from the cyclical nature of the cattle industry. The fifteen-year average cattle population for Pershing County is 32,900 head. If the cattle industry maintains its current level of dependence on public land (18 percent) then long-term average forage requirements for cattle will be 71,064 AUMs.

In terms of the resource area as a whole, little data is available on the fluctuation in cattle numbers occurring on the ranches outside of Pershing County (See PAA Table 22 for livestock data of other counties with some acreage in the resource area).

PAA TABLE 22

Other County Cattle Data 1/

	Washoe	Churchill	Humboldt
1977 Cattle Population <u>2/</u>	26,000	54,000	64,000
15 Year Average Cattle Population <u>2/</u>	29,700	52,300	79,300
County Cattle Population within Sonoma-Gerlach (1977)	2,554	1,088	2,877
Sonoma-Gerlach as Percent of 1977 Total	10%	2%	4.5%

1/ Lyon County is not included because it includes a part of only one allotment, the majority of which lies in Churchill County.

2/ U.S. Department of Agriculture, Nevada Agricultural Statistics 1969-1978.

3/ BLM, Winnemucca District Office files.

* * * *

Average cattle forage requirements for the portions of the resource area outside Pershing County, based on the same assumptions as before, would be 43,684 AUMs. Total long term resource area forage requirements for cattle (including Pershing County) from public land would be 114,748 AUMs.

The sheep industry has been in a long period of decline dating back to the 1920s. The record high for sheep numbers was set in 1920 at 1,340,000 head. The record low, of 114,000, set in 1978, was matched in 1979. The decline of the sheep industry is due to several factors: predation, high overhead costs, and poor public relations.^{2/} Predation, by coyotes in particular, is a serious problem to sheep ranchers. The industry feels that the prohibition on the use of 1080 (a chemical poison used to kill predators) by the Department of Interior only compounds this problem. High overhead costs are mostly attributed to a shortage of skilled herders. Government red tape involved in recruiting Basque herders from Spain has been cited as an element that adds to this shortage.^{2/} PAA Charts 1 and 3 illustrate the decline in the sheep industry for the state and for Pershing County. Pershing County's sheep population has generally represented five to ten percent of the state total. The 1979 population of 6,000 sheep in the county represented only five percent of the total for the state.

2/ Personal communication, Bill Vaught, 1980

Future forage requirements by the sheep industry from public land are difficult to estimate due to recent developments in the industry. The January 1980 sheep population for the national industry was up five percent, the first increase in a long, steady period of decline. Lamb prices are up significantly, and a trend back toward natural fibers has begun as a result of oil price increases.^{1/} (Synthetic fibers are derived from oil). These developments may indicate the beginning of a turnaround in the industry's long decline; however, the developments are too recent to make any definitive judgements on changes in industry trends. Forage requirement projections, therefore, should be understood as rough approximations only.

If it is assumed that recent developments represent the beginning of a new growth period for the industry, then current sheep populations can be used as an estimate of minimum forage requirements. The 1979 sheep population of the resource area was 13,000 head. With an average dependence on public land for forage of 23 percent, an estimated 7,180 AUMs of forage are required. When sheep and cattle forage requirements are combined, total public land livestock requirements are approximately 122,000 AUMs, six percent more than five year average licensed use but 13 percent less than the recompilation of previous range surveys. If it is assumed that the two percent growth of January 1, 1980, represents a sustained annual growth rate for the industry, then projecting this growth into the future could be an estimate of maximum forage requirements. Under this assumption, public land forage requirements for sheep rise to 8,800 AUMs by 1990 and 10,600 AUMs by 2000. When totaled with cattle resource area forage, requirements rise to 123,600 AUMs by 1990 and 125,400 by 2000.

Demand for forage from public land is affected by several trends which cannot be accurately predicted. The cyclical nature of beef prices results in wide short term fluctuations in cattle numbers. Because beef prices cannot be predicted, the extent of the fluctuation in numbers is unknown. The price of hay also affects livestock numbers. In years of high hay prices some operators will increase the amount of private acreage devoted to hay production, reducing the amount of private forage available for livestock, and resulting in reduced demand for public land forage if herd size is reduced, or increased demand if the operators attempt to augment reduced private forage with public range.

1/ Personal communication, 1980

The price of AUMs also affects demand. The BLM was instructed by the Bureau of the Budget to charge full market value for products, including forage, derived from federally administered lands. The price of public AUMs had been well below that of private AUMs. Due to political delays, public AUMs do not yet reflect full market value. Should the political constraints be released and the price of public AUMs increase, then demand for public forage should decrease.

Several of the operators in the area feel that public land AUMs are of poorer quality than rented private AUMs and that charging full market value for public AUMs would result in overpricing. They cited higher forage productivity of rented private pastureland, the services provided by the rentor vs those provided by the BLM, and the ease of access to water, as substantiation for the claim that public AUMs are of poorer quality than private AUMs. This condition should accelerate the reduction in demand stemming from the rising price of public AUMs.

The perception of an insecurity of tenure in a specified number of public AUMs also leads to reduced demand. A steady erosion in the number of permitted public AUMs was cited as a reason for reducing dependence on public forage. It was felt that the uncertainty regarding the number of AUMs available from public land on a year-to-year basis made efficient operation difficult, and therefore, the less reliant on public land, the better off an operation was.

Additional demand for public forage comes from wild horses and burros. At present, very few AUMs are allocated for this purpose, although future plans may include greater allocation of forage to wild horses and burros. In 1979, 6,151 wild horses and burros consumed an estimated 73,812 AUMs of public range forage. Future plans call for a reduction in their numbers, but their population will depend on the available forage. No wild horse and burro population estimates are available on a resource area basis to date.

F. Public Attitudes and Social Values

Ranching and ranchers are important to all the people interviewed. Nevada is seen as a ranching state even though other industries contribute much more than ranching to the state's economy (U.S. Department of Commerce, Personal Income by Major Source 1972-1977, 1979).

Ranchers are considered to be stable and important residents of the area. They are thought to have much influence in Carson City and, as such, are good people to know.

The ranchers themselves feel they have influence. One said he favored the Sagebrush Rebellion because he thought he'd have more effect 'pushing' in Carson City than in Washington, D.C. Another rancher said he 'could talk to the folks in Carson City,' but not to Washington bureaucrats.

Ruth Houghton said in her 1976 report for the Winnemucca District Socio-Economic Profile (SEP) that ranchers exerted a surprising influence in the state, considering the small populations in the rural counties.

Basically, the ranchers interviewed want to continue doing what they have in the past--except they would like less regulation. Several ranchers want the freedom to do their own improvements and construction on their allotments. They said it takes years to get the BLM to accomplish requested improvements.

Several ranchers--as well as other local residents--would like to see more autonomy for the local BLM office.

Several ranchers agreed that the Sagebrush Rebellion is in part a manifestation of the general dislike and distrust of big government. One rancher said that he hoped Washintgon would pay attention to the message.

Many ranchers disagree with various BLM policies and philosophies. Some areas that were mentioned are listed below:

1. Ear tagging: not necessary in allotments where trespassing has not been a problem.
2. A Lovelock resident said that many ranchers would like better communication with the BLM personnel. They would like more one-to-one dialogue rather than public meeetings where they feel they are being used to show off the Bureau's "openness."

3. On/off Dates: objection to common on/off dates just for the convenience of the BLM. The common on/off dates make it more difficult and expensive for the rancher.
4. Grass seedings: Nevada is not grass country, as why try to grow grass. Livestock have adjusted to a non-grass diet so leave it that way.
5. BLM control of improvements: several ranchers would prefer to do their own work rather than wait for the BLM. One said ranchers would have more incentive to keep the improvements (e.g., water troughs) in good repair if they had built the things themselves.
6. BLM water right filings: all interviewees (ranchers and others) disapprove of BLM filing for water. But then none of them understood where the filings were or why the BLM was filing for water rights.

The ranchers who have Allotment Management Plans (AMPs) on their allotments are pleased with the results. One rancher said the rest-rotation system had helped the land, and added the statement that the land really does need care or it will not continue to support the livestock.

Another rancher agreed that the two-pasture rest-rotation system resulted in better forage for his livestock. He was confused, however, as to why he had to pay the same amount of money yet could only use half of his allotment.

Most of the ranchers and many other interviewees objected to the cuts indicated by the range survey in the Paradise-Denio area. Some denied any deterioration of the range and said flatly that cuts were not necessary. Others admitted that less grazing was probably desirable, but they hated to see such big cuts.

One rancher questioned the idea that Les Stewart's ranch (Paradise-Denio Resource Area) should experience such large cuts. The rancher said Stewart's ranch was supposed to be managed as a model ranch by BLM standards so how could the condition of the range be so bad that a 60 percent cut was being considered now. He also said that he had been on Stewart's range and that the forage was healthy and flourishing.

This same rancher (not a Winnemucca District permittee) said he considers the insecurity in tenure of BLM grazing permits too high to invest money in a ranch that is dependent for a profitable operation on public land grazing. He said the government changes policies and practices too often to be depended upon. This rancher and several others in the Lovelock area have summer range (not public land) in the Battle Mountain area. This independence of public land may account for the few complaints or even discussions of grazing cuts by Lovelock residents.

One rancher said that even a 20 percent cut in his AUMs would put him out of business because he is still paying for his ranch.

Some ranchers did talk about the importance and the necessity of their ranching operations to the American public. They feel that without their production of beef, the country could not survive.

Fernley people are not concerned with range problems, and a realtor said he doubted if more than one person in ten would know what the BLM does in Nevada. Most Fernley residents work in Reno.

WILD HORSES AND BURROS

A. Analysis

Wild horse and burro management is an integral part of the range management program. Competition for the available range forage among wild horses and burros, livestock, and wildlife requires cooperation among the respective specialties for effective management of forage resources on public range. The current range program initially allocated a small quantity of forage to wildlife with the remainder allocated to livestock. No forage was originally allotted to wild horses and burros.

A large die-off of wild horses in the Buffalo Hills Allotment occurred in the winter of 1977 as a result of overgrazing by livestock, wildlife, wild horses and burros. The BLM responded by closing approximately one-third of the Buffalo Hills Allotment to livestock grazing. A reduction in authorized grazing preference was also made in the Soldier Meadows Allotment in order to provide for current wild horse and burro forage demands.

Wild horse and burro forage demand is still much greater than these compensations can supply. The 1979 estimated wild horse and burro population of 6,151 animals required 73,812 AUMs of forage, 64 percent of five year average licensed use on the Sonoma-Gerlach Resource Area. The recompilation of previous range surveys indicates that there is insufficient forage to meet the competing requirements of livestock, wildlife, wild horses and burros. The impact of omitting forage allocation to wild horses and burros has resulted in stiff competition for diminishing forage resources and a general contribution to the decline in range conditions.

In the past, wild horses were gathered and sold for slaughter or private use. This practice was halted with the passage of PL 92-195, the Wild and Free Roaming Horse and Burro Act. The result was a change in the value of wild horses and burros from an economic value to an esthetic and socio-cultural value. The esthetic and socio-cultural values of wild horses and burros are generally expressed in terms of the value of recreational viewing and the values gained through the enjoyment of others or through the knowledge that wild horses and burros exist on the range whether the individual ever sees them or not.

Due to the absence of data regarding the number of visitor days of recreational viewing and other nonconsumptive uses it is not possible to derive an estimate for the esthetic and socio-cultural value of wild horses and burros on public rangelands.

Generally, it is felt that much of their value lies in their scarcity. As numbers increase and sightings become more common the value of the individual experience decreases. The current trend of increasing numbers has made sightings common particularly along Interstate 80 south of Winnemucca. At some point the aggregate value of increased sightings peaks, and then begins to decline as the value of each individual sighting decreases.

Wild horses and burros, in combination with cattle, are responsible for a number of negative impacts to the range. They consume valuable forage, causing (with present livestock numbers) a deterioration of range conditions, thus reducing the number of livestock that can be grazed on public land and causing reductions in wildlife numbers. The horses are partly responsible for watershed damage in areas of severe overgrazing due to the accelerated erosion caused by compaction, removal of vegetative cover, and trailing.

At present it is not possible to estimate the reduction in wildlife numbers or the damage to watersheds caused by wild horses and burros; consequently their negative impacts must be estimated in terms of the value of forage they consume. The fair market value of an AUM (the price paid per AUM for private pasture rental) in terms of its rental or lease value, not its value as a ranch asset was \$6.70 in 1977.

The 1977 wild horse and burro population of the Sonoma Gerlach Resource Area was estimated at 6,841 animals. At the value of \$6.70 per AUM they consumed \$550,016 worth of forage in 1977 (6,841 animals x 12 AUMs per animal per year x \$6.70 per AUM). The income loss to livestock operators resulting from wild horse and burro forage consumption was \$412,923.^{1/} The total direct and indirect income loss to all sectors of the Sonoma Gerlach resource area economy due to wild horses and burros was \$843,085.^{2/} Data from 1977 is used because that is the most recent year for which income data are available.

Current proposals call for the maintenance of wild horse and burro populations at numbers significantly below those currently on the public range. Therefore the cost of roundup and maintenance, until adoption, is an additional factor that can be considered in the economics of wild horses and burros.

^{1/}Computed on the basis of an income of \$5.03 per AUM. This figure derived by dividing public land agricultural income (\$395,200) by public land forage consumption (78,517 AUMs) from PAA Table 15. ^{2/}Computed on the basis of a combined direct and indirect income of \$10.57 per AUM. This figure was derived in the same manner as the one above from PAA Table 15 (\$829,920 divided by 78,517).

Organized roundup operations in the resource area were initiated by the BLM in 1977. Due to the inexperience of the operators, gathering and maintenance costs ranged from \$300 to \$600 per horse. Since that time the operators have gained experience, and efficiency has improved to the point where gathering and maintenance costs are now less than \$90 per horse (Hal Pilkington, Palomino Valley Public Information Officer, personal conversation 1979). Gathering operations should be a continuous element of the BLM's management program because of the current estimated 11 percent annual recruitment rate to wild horse and burro numbers.

Total costs of the annual gathering necessary to maintain a stable population will not be known until the numbers that will be maintained at stable levels in the resource area are determined.

In summary, the value of wild horses and burros has changed from an economic to an esthetic and socio-cultural value. It is not possible to measure this value due to the absence of data. The negative impacts of wild horses and burros result from the forage they consume and the watershed damage they cause. The only impact which can be measured is that of forage consumption which results in a total income loss to the resource area economy of \$843,085. The cost of annual gatherings, in order to maintain a stable population, is an additional factor affecting the economics of wild horses and burros.

B. Public Attitudes and Social Values

Most local residents interviewed want the wild horse population controlled but not eliminated completely. 'Control', however, has different meanings, depending on the speaker.

The wild horse problem surfaced in the 1960s when Velma Johnston of Reno gained national publicity for her campaign to preserve the wild horse populations of the west. She maintained that roundups of the horses were cruel and inhumane and that the roundups, if continued, would decimate the herds.

The media made the entire country aware of the roundups and that the horses were being sold to dog and cat food processors. Mrs. Johnston was dubbed 'Wild Horse Annie' and received offers of help as well as money to continue her campaign.

Several protective groups were soon formed who lobbied for a national law to save the horses. In 1971 the Wild and Free Roaming Horse and Burro Act set up strict rules making it illegal to gather and/or sell any unbranded horse.

Ranchers and many local residents see the horses as stealers of forage and water from cattle and livestock. Burros are so scarce in northern Nevada that no one ever mentioned them, but at least three-fourths of the people interviewed complained about the BLM's management of wild horses.

The horse protection groups have fought and continue to fight to keep the wild horses and to preserve their rights to use the range. These groups have political clout and money. One protective group based in Washington, D.C. had a 1979 budget of almost a million dollars. They, and some other groups also, object to fenced areas for the horses because they feel the poorest, most undesirable area would be given to the horses.

Severe winters and poor range conditions have limited the forage and resulted in many horses starving to death. One indignant interviewee reported that, faced with this information and, therefore, the need to lower the horse populations, the chairman of a horse protection association said that was nature's way of keeping the population down.

One person commented sarcastically on the 'improved' methods of gathering wild horses since the government took over. Before the Wild Horse and Burro Act of 1971 the ranchers gathered the excess horses and sold them, thus earning extra money. Now the BLM gathers the horses inefficiently and at great expense (\$100 per horse was quoted) to the taxpayers.

One interviewee who feels the horses are hurting the ranchers said horses are harder on the range and water holes than cattle because the horses paw the ground so strenuously.

All these complaints indicate the local people are disgusted with BLM's management of the horses, although most people added that they know the rules come from Washington.

The Pershing County Extension Agent said he felt the locals' dislike of the handling of the wild horse problem was one of the prime causes of the Sagebrush Rebellion.

A rancher who is also an enthusiastic hunter blames the wild horses for decreasing the wildlife populations (deer and antelope). He says the horses frighten the smaller animals away from the riparian areas where the water and also the best forage are.

Most ranchers say they enjoy watching the wild horses run on the range--if only there were not so many of them. One rancher has asked the BLM to leave some of the wild horses--he enjoys watching them and even feeds the one herd he'd like left on his allotment.

Another rancher who says he does not object to a few horses tells of inbreeding problems. He says he has seen wild horses with abnormally long heads and other genetic faults.

Town people object to the excessive horse numbers almost as strenuously as the ranchers.

The BLM's Adopt-A-Horse program is seen as a basically good program, 'the only way we can get rid of the damned horses,' as one rancher put it. However, some people objected to the high cost of gathering the horses. Local people want the horse populations controlled. Some suggested harvesting and some suggested fenced areas such as the Sheldon Range for antelopes. No one specifically objected to confining the horses to one area. Several people emphasized that whatever is done with the horses should be accomplished in a humane manner.

WATERSHED, WATER RESOURCES AND AIR QUALITY

Public Attitudes and Social Values

Erosion and watershed problems were mentioned as concerns by several people, but most people were not much interested or knowledgeable. One person asked if erosion meant flooding and said that was bad and should be stopped. One rancher wanted to do his own dam building on his allotment. One Lovelock resident wondered if more water could be saved (as in dams) for more agriculture in the valley. Another said she thought the ranchers were worried about erosion but preferred to take care of it themselves.

Erosion is shrugged off by some interviewees as a natural phenomenon that can't be changed so why worry about it! This attitude illustrates a rather prevalent opinion among the local residents - that the government only fouls things up anyhow, so it's better it does nothing.

BLM's filing for water rights has upset and angered local people. A knowledgeable Lovelock resident thinks water and water rights may be the big issues in the next few years. This person also said most people do not understand why the BLM files for certain waters or even what waters are being filed for. Most of those interviewed did not understand the reasons for the BLM filings.

Some ranchers said they need more water for their livestock and were frustrated with the time needed and delays in trying to get the BLM to provide the water improvements.

One ranch manager said in a disgusted tone of voice that he'd take care of the water improvements on his allotment himself, but the BLM wouldn't let him. This man is in favor of the Sagebrush Rebellion because he thinks the state will allow ranchers more freedom on their allotments than the BLM does now.

Air quality is important to local residents. Clean air was given as one of the main reasons that some people moved to this area. Dust control in the Winnemucca vicinity is a local concern and, according to one local official, many people feel the public lands are a main source of dust. He suggested the BLM work with the State of Nevada on control measures.

The following is excerpted from the Paradise-Denio PAA:

Most residents of Winnemucca and rural residents of the planning area consider the BLM's water right acquisition program to be unnecessary and a threat to the continued existence of the ongoing uses of the public lands.

Some local residents agree that accelerated erosion is occurring on the public lands and is caused by current land uses. These persons feel that watershed should be stabilized as much as possible but with minimal impact to ongoing uses.

The general opinion of area residents is that air and water quality are currently at an acceptable level and that most pollution occurring is natural. It is felt that the public lands, rather than the private sector, contribute the majority of the area's air and water pollution. Most would prefer that a local regulatory body be responsible for implementation of any pollution control measures.

In addition, users feel that access roads should be maintained in good condition. (Ted Angle from "208" Planning Meeting, March 1978, and individual contacts.)

WILDLIFE

A. Pershing County

Required Analysis

Pershing County has substantial populations of several game animals. Species harvested from the county at rates significantly above statewide averages include chukar partridge, pheasant and waterfowl. See PAA Table 23 for data on harvest and hunter days.

Pershing County is the single most important source of pheasant within the state. Hunting statistics for 1977 indicate that the county had 57 percent of statewide hunter days and 62 percent of the statewide harvest. Lovelock Valley, which is mostly private land, provides the great majority of the county's pheasant habitat. Only an estimated five percent of pheasant habitat lies within public land boundaries, consequently BLM management practices have little impact on conditions affecting pheasant populations.

Waterfowl are also an important game species in the county. The county is responsible for 8 percent of statewide hunter days and 10 percent of the statewide harvest. The importance of the county's waterfowl resource is substantiated by the fact that Washoe County hunters, many of whom must travel up to 100 miles, account for 65 percent of the harvest.^{1/} The majority (95%) of the county's waterfowl habitat lies on lands other than those managed by the BLM. Rye Patch Reservoir is the only important use area in the county where the BLM controls more than an insignificant portion of habitat.

Aquatic and riparian vegetation are important for providing quality waterfowl habitat. Wild horse and livestock use and water level fluctuations damage the aquatic and riparian vegetation. The BLM has no impact on water level fluctuations which are controlled by precipitation and the water requirements of the farming community around Lovelock, but can have an impact on wild horse and livestock use by its management practices on public land habitat along the Rye Patch Reservoir shoreline.

^{1/} Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

PAA TABLE 23
Pershing County Wildlife Harvest 1977

Species	Pershing County	Harvest			Pershing County	% of State	Hunter Days			Nonresident Hunter Days	Pershing County Resident Hunter Days
		% of State	Public Land	% of County			% of State	Public Land	Resident Hunter Days		
Big Game											
Mule Deer	76	0.9	52	68	641	0.7	436	579	62	No Data	
Upland Game											
Sage grouse	174	2.3	130	75	140	1.8	105	140	0	0	
Chukar											
Partridge	8,189	15.7	6,551	80	3,549	10.8	2,839	3,458	91	1,025	
California Quail	4,010	5.6	2,205	55	1,604	4.8	882	1,601	3	488	
Pheasant Cocks	3,068	61.7	153	5	3,057	57.0	153	3,057	0	475	
Cottontail Rabbit	1,943	2.7	1,477	76	1,438	3.0	1,093	1,419	19	670	
Dove	5,127	4.1	3,896	76	848	2.4	644	845	3	425	
Upland Game Total	22,511	6.7	14,412	64	10,636	6.4	5,716	10,599	116	3,083 (29%)	
Waterfowl	9,214	10.5	461	5	5,537	8.2	277	5,340	197	1,858	
Hunting Total	31,801	7.4	14,925	47	16,814	5.2	6,429	16,518	375	4,941	
Fishing	81,141	2.6	5,275	65	27,083	1.8	1,761	NO	DATA		

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.
Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

Chukar partridge is the other game species in the county harvested at rates above the statewide average. Chukar accounted for 11 percent of statewide hunter days and 16 percent of the statewide harvest in 1977. The high quality chukar hunting available in the county is attested to by a small percentage of hunters accounting for a greater percentage of the statewide harvest. (See PAA Table 23) Chukar are the most important game species on public land in the county, accounting for 44 percent of total hunter days on public land. There are approximately 1,300,000 acres of chukar habitat, 80 percent of which lie on public land. Water sources are the crucial factor affecting chukar habitat, particularly in the summer when chukar are seldom more than a short distance from water.^{1/}

The type of water development BLM constructs has an important impact on chukar distribution. Water developments with overflows or escape ramps can provide important new habitat or prevent destruction of old habitat.

Other game species with a substantial portion of habitat on public lands include mule deer, sage grouse, quail, rabbit and dove. Mule deer have declined in importance since the institution of a quota system, designed to prevent further population reductions, in 1976. Hunter days in the county were reduced by about half as a result of the system's implementation. Because quotas are determined on an annual basis and the county's deer population has been recovering, larger deer harvests and consequently greater numbers of hunter days may make this species more important in the future. Both summer and winter ranges are important habitat areas but maintenance of winter ranges is crucial in order to minimize the overwinter fawn loss.

Sage grouse were once one of the most abundant game species in the county. The population is severely depleted at present due to reduction of habitat quality. Important habitat areas are sage brush wintering grounds and mountain meadows which are a source of water and forage in the summer. Population and acreage data and hunting coefficients for mule deer, chukar partridge and sage grouse are presented in PAA Table 24.

^{1/} Sonoma URA 1980

Hunting quality for the remaining game species in the county is fair to good depending on habitat quality and number of other hunters. Quail, rabbit, and dove account for 23 percent of the hunter days within the county. Dove habitat is adequate to support current populations. Riparian areas have the greatest importance as habitat. Quail and rabbit are generally harvested incidental to chukar, little hunting specifically for either species occurs in the county. Habitat is adequate for both and riparian sites are also important habitat areas for these species.

PAA TABLE 24

PERSHING COUNTY POPULATION AND ACREAGE DATA AND HUNTING COEFFICIENTS
FOR SELECTED GAME SPECIES

<u>Species</u>	<u>Hunter Days</u>	<u>Population</u>	<u>Hunter Days Per Unit of Population</u>	<u>Habitat</u>	<u>Hunter Days Per Unit of Habitat</u>
Mule Deer	641	957	.67	680,577	.0009
Chukar Partridge	3,549	39,083	.09	1,293,865	.003
Sage Grouse	140	1,412	.12	182,720	.0008

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

Sonoma-Gerlach URAs 1980.

* * * *

The majority (98 percent) of the hunting in the county is by Nevada residents. Nonresident hunters accounted for only 375 hunter days most of which were spent hunting mule deer and chukar. Nonresident hunters were statistically significant only in terms of the number of days spent mule deer hunting, where they accounted for 10 percent of total hunter days.

Washoe County is the source of the largest number of hunters in the county. Washoe County hunters accounted for 7,743 hunter days, 47 percent of the county total. Pershing County residents, in comparison, accounted for only 29 percent of the county's hunter days. Washoe County residents expended a majority of their time (36 percent) in pursuit of waterfowl. Pheasant and chukar followed waterfowl in terms of importance. Hunting on public land amounted to only 6,429 hunter days, 39 percent of the county total. The low figure for public land is due to the large number of days spent hunting waterfowl and pheasant, species with very little habitat on public land. For the remaining species, public land was considerably more important, accounting for 73 percent of total hunter days. Public land was most important for chukar where it was responsible for 80 percent of the total hunting days.

Pershing County furbearer statistics are presented in PAA Table 26. The value of furs has been increasing steadily over the past few years. The value of long-haired furs, in particular, have shown the greatest increases. Trapping pressure has increased in relation to the value of furs.

Furbearer species harvested at significant levels in the county include muskrat, bobcat, and coyote. Pershing County is responsible for 17 percent of the statewide muskrat harvest. Trapping pressure is primarily along the Humboldt River, only five percent of which is bordered by public land. Consequently BLM management activities have little impact on the species. Trapping pressure for bobcat and coyote is assumed to be equally distributed throughout the county, therefore approximately 75 percent of the harvest is derived from public land. These two species account for 88 percent of the value of furs taken countywide and 98 percent of the value of furs taken from public land. Rocky slopes and escarpments are important habitat requirements for bobcats, while coyotes seem to be non-specific. Riparian habitat is considered important for these species as well as all other furbearers.

Fishing in Pershing County occurs along several perennial streams, one major river, and one major reservoir. The fishable length of streams in the county is about 112 miles; of this total, 78 miles or 70 percent is attributed to the Humboldt River, very little of which is bordered by public land. Of the remaining streams with fishable reaches, 52 percent of the mileage is BLM managed. However, very little of the fish harvest or angler days occurs along the streams.

PAA TABLE 26
1977 PERSHING COUNTY FURBEARER HARVEST 1/
(LICENSED TRAPPERS ONLY)

<u>Furbearer</u>	<u>County Harvest</u>	<u>Percent of State</u>	<u>Public Land Harvest</u>	<u>Number of Trappers^{3/}</u>	<u>Trap Nights Per Animal</u>	<u>Total Trap Nights^{4/}</u>	<u>Average Value Per Pelt</u>	<u>Total Value</u>	<u>Value From Public Land</u>
Beaver	10	1.3	15/	2	41.7	417	9.22	92.20	9.22
Kit Fox	38	5.5	292/	4	--	---	9.16	348.08	265.64
Muskrat	1,401	16.9	705/	5	19.0	26,619	3.88	5,435.88	272.00
Bobcat	188	6.7	1422/	27	241.0	45,308	173.94	32,700.72	24,699.48
Coyote	436	7.1	3292/	12	158.9	69,280	34.63	15,098.68	11,393.27
Badger	16	2.9	122/	6	--	---	15.53	248.48	186.36
Total	2,089	10.2	583	56	--	141,624	---	53,924.04	38,826.00

1/ From NDFG Furbearer Investigations, 1978.

2/ Trapping pressure is assumed to be equally distributed throughout the county, 75.4% of Pershing County is public land.

3/ Some trappers are counted more than once because they trap more than one species. Total licensed trappers in Pershing County is estimated by NDF&G at 32 trappers (personal communication, employee of Nevada Department of Wildlife).

4/ Total trap nights determined by multiplying number of traps multiplied by number of days trapped (NDOW).

5/ Trapping pressure for beaver and muskrat occurs primarily along the Humboldt River. Five percent of the land along the Humboldt River is public land.

Rye Patch Reservoir is the major source of lake fishing in the county. Very little (approximately five percent) of the perimeter of the Reservoir is public land; most of the surrounding land is either private or has been withdrawn by the Bureau of Reclamation. Rye Patch Reservoir and the Humboldt River account for about 93 percent of all fishing in the county, consequently BLM management policies have very little impact on the most popular fishing habitat in the county. The quality of the fish habitat (in many of the perennial streams where BLM management is significant) has declined to the extent that the Nevada Department of Wildlife has deleted them from their stocking program. Data from a recent survey of fishable streams on public land is summarized in PAA Table 27.

PAA TABLE 27

SUMMARY OF STREAM HABITAT CONDITIONS ON PUBLIC LAND
IN SONOMA-GERLACH RESOURCE AREA

	Percent Optimum of Habitat	Number of Streams in Class	Number of Miles of Stream in Class	Percent of Condition in Class
Excellent	>70	1	3	7
Good	60-69	4	9	21
Fair	50-59	6	17	41
Poor	<49	4	13	31

Source: Sonoma-Gerlach URAs, 1980

* * * * *

Pershing County was responsible for 27,083 angler days and for the harvest of 81,151 fish, 1.85 percent and 2.44 percent of the state totals, respectively. Of these quantities, anglers on public land accounted for only 6.5 percent of the total. PAA Table 23 presents data on harvest and angler days.

Fishing provided \$32,602 in income to the county in 1977. Of this, approximately \$2,285 (.02 percent of total county income) was generated by fishing activity on public land. No employment is estimated to be derived from this income and therefore there is no population dependence derived from this activity on public land.

The demand for the fishing resource is related to population. Approximately 40 percent of the anglers are from Washoe County with the remainder distributed throughout the state and from California. Demand projections are based on a weighted average of population projections for Washoe and Pershing Counties (see PAA Table 29 for demand projections). Currently, angling pressure on the perennial streams where public land is a significant element of stream mileage does not exceed the capacity of the fisheries resource. However the ongoing deterioration of fish habitat will eventually reduce the resources' support capacity to the point where supply is exceeded by demand. To ensure a high quality angling experience on these streams it is necessary to protect the riparian habitat and watershed from natural or man-caused adverse impacts. This will depend on the degree of livestock management in the future and on the extent of riparian habitat improvement projects.

Income-Employment

Estimates of the income and employment generated from the consumptive demand for wildlife within Pershing County are presented in PAA Table 28. Expenditure figures are based on data accumulated in a study done by Garrett of the University of Nevada Reno in 1969. This study applied to big game hunting in Nevada but, the findings in other studies (Oliver 1977 and Hansen 1977) showed relatively small differences in hunter day expenditures between big and upland game hunting. Therefore it was felt that the figures derived by Garrett would approximate hunter day expenditures for all game species. Direct income is estimated by multiplying expenditures by 0.26, the estimate of personal income derived per dollar of expenditure (Malone and Detering 1969). Total income is then determined by the use of a multiplier derived by the Nevada State Engineers Office in its Water for Nevada series of reports.^{1/} Employment figures are then estimated by dividing total income (\$13,985,000) by average income in the trade sector (\$9,417) of the Pershing county economy (see PAA Table 5) and multiplying by the employment multiplier for the trade sector from the Nevada State Engineer's Office. The trade sector was chosen because it is the sector in which the majority of expenditures for hunting purposes are made.

^{1/} Nevada State Engineers Office, 1974

PAA Table 28 indicates that the income and employment generated by hunting, trapping and fishing activities on public land in the county is \$71,794 and eight persons, respectively. Both figures account for less than one percent of the total county income and employment. Population dependence on the consumptive use of public land wildlife resources, based on a population employment ratio of 2.21 is 18 persons, less than one percent of the county population. Upland game and chukar in particular are the source of the majority of both income and employment generated by wildlife resources on public land in the county.

Income derived from trapping activities is based on an average income per trapper of \$1,250 (NDF&G 1978). Trapping is generally a source of supplemental income for the county's trappers.

Demand Projections

The demand for wildlife resources is affected by local and regional populations. Wildlife demand projections are tied to a weighted average of the population projections for Washoe and Pershing Counties. The Washoe County population, residents of which account for 47 percent of the Pershing County hunter days, is projected to increase 116 percent by 1990. The remainder of the hunter days will be tied to the Pershing County population increase projection of 34 percent by 1990. The projected increase in demand by 1990, based on the weighted average, is 72 percent. At present the demand for antelope, available only in the Washoe County sector of the resource area, and for mule deer is artificially restricted by the quota system, consequently an increase in future demand need not result in an increase in future hunter days or harvest levels. PAA Table 29 presents harvest and hunter day projections for game species in Pershing County. It also presents the increases in habitat acres and species populations needed to preserve current hunter-days-per-unit-population and hunter-day-per-unit-habitat ratios for species in the county for which data is available. Statewide wildlife projections from the Nevada State Engineer's Office Water for Nevada reports are presented in PAA Graphs 4-7.

Bighorn sheep may be reintroduced into the area by the Nevada Department of Wildlife in the near future. No projections for hunter days or harvests are made because hunting will not be permitted until a population sufficient to support an annual harvest has developed. Bighorn sheep do, however, have the potential of adding to the wildlife resource demand in the period beyond 1990.

PERSHING COUNTY WILDLIFE GENERATED INCOME AND EMPLOYMENT

Activity	Visitor Days	Pershing County	Public Land	Direct ^{2/} Income	Pershing County	Public Land	Percent Contribution of Public Land to		Employment Public Land ^{5/}	Percent Contribution of Public Land to Total County Employment
							Total County Income	Land to Income		
HUNTING										
Big Game										
Mule Deer	641	13,592	9,242	3,534	3,811	2,591	.02		0	0
Upland Game										
Sage Grouse	140	2,110	1,582	529	592	444	<.01		0	0
Chukar										
Partridge	3,549	75,860	60,688	19,724	21,272	17,018	.12		2	.15
California										
Quail	1,604	32,268	17,747	8,390	9,049	4,979	.03		0	0
Pheasant										
Cocks	3,057	53,764	2,688	13,979	15,076	754	<.01		0	0
Cottontail										
Rabbit	1,438	33,730	25,635	8,770	9,458	7,188	.05		1	.08
Dove	848	19,855	15,090	5,162	5,567	4,231	.03		0	0
Upland Game										
Total	10,715	218,777	123,430	56,882	61,347	34,614	.25		6	.30
Waterfowl	5,537	126,038	6,302	32,770	35,342	1,767	.01		4	0
Hunting Total	16,893	358,407	138,974	93,186	100,501	38,972	.28		11	.30
Trapping ^{3/}	3,287	53,924	36,826	40,027	43,169	27,196 ^{7/}	.19		5	.23
Fishing	27,083	125,394 ^{8/}	8,150	32,602	35,162	2,285	.02		4	0
Wildlife Total	43,976	537,725	195,903	165,815	178,832	71,794	.49		19	.61

Totals may not add due to rounding

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

1/ Expenditures based on \$11.27 local expenditures per day by Pershing County residents, \$15.07 local expenditures by other Nevada residents and 78.50 local expenditures per day by nonresidents. Values are adjusted for inflation (Garrett 1970) includes costs for licenses and tags but does not include other fixed costs for equipment.

2/ Expenditures are multiplied by 0.26 (the estimate of direct personal income derived per dollar of expenditure from "An Interindustry Analysis of the Elko County, Nevada" Malone and Detering 1969).

3/ Expenditures represent value of furs, income derived by multiplying number of licensed trappers (32) times average income per trapper (\$1,250.85) "Fur-trapper Investigations" NDFG 1978.

4/ Direct income x 1.0785 (value added multiplier for trade sector of Humboldt Regional Model, "Water for Nevada Special Report Input Output Economic Models" 1974).

5/ Employment estimated by dividing total income by average income per employee in the trade sector (9,417) (Table 5 in Lands Section of PAA).

6/ Direct employment x 1.0193 (Employment Multiplier for Trade Sector of Humboldt Regional Model, Nevada State Engineers Office, "Water for Nevada Special Report Input Output Economic Models" 1974).

7/ Sixty-three percent of value of furs is assumed to be derived from public lands, 63% of income is also assumed to be derived from public land.

8/ Based on \$4.63 expenditure per angler day in the county derived from "The Demand, Value, Economic Impact and User Characteristics of Four Outdoor Recreation Areas in Northeastern Nevada" an unpublished Master's Thesis by Robert W. Johnson 1977.

PERSHING COUNTY WILDLIFE PROJECTIONS

Activity	1977 Harvest	1990 ^{1/} Projected Harvest	1977 Hunter Days	1990 ^{1/} Projected Hunter Days	1977 Species Population	Projected Increase in 1977 Population Needed to Meet 1990 Demand	1977 Habitat Acres	Increase in Habitat Acres Needed to Meet 1990 Demand
Hunting								
Mule Deer ^{2/}	76	131	641	1,102	957	543	680,577	490,015
Upland Game								
Sage Grouse	174	300	140	241	1,142	824	182,720	131,558
Chukar Partridge	8,189	14,129	3,549	6,104	39,083	28,739	1,293,865	931,583
California Quail	4,010	6,918	1,604	2,759	N	N	N	N
Pheasant Cocks	3,068	5,293	3,057	5,258	O	O	O	O
Cottontail Rabbits	1,943	3,352	1,438	2,473				
Dove	5,127	8,846	848	1,459				
Upland Game Total	22,511	38,838	10,715	18,294	D	D	D	D
Waterfowl	9,214	15,848	5,537	9,524	A	A	A	A
Hunting Total	31,801	54,817	16,893	28,920	T	T	T	T
Fishing	81,141	135,505	27,083	45,229	A	A	A	A
Trapping ^{3/}	2,089	2,799	3,287	4,405				
Wildlife Total	119,743	193,121	47,263	78,554				

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978. Nevada Department of Wildlife.

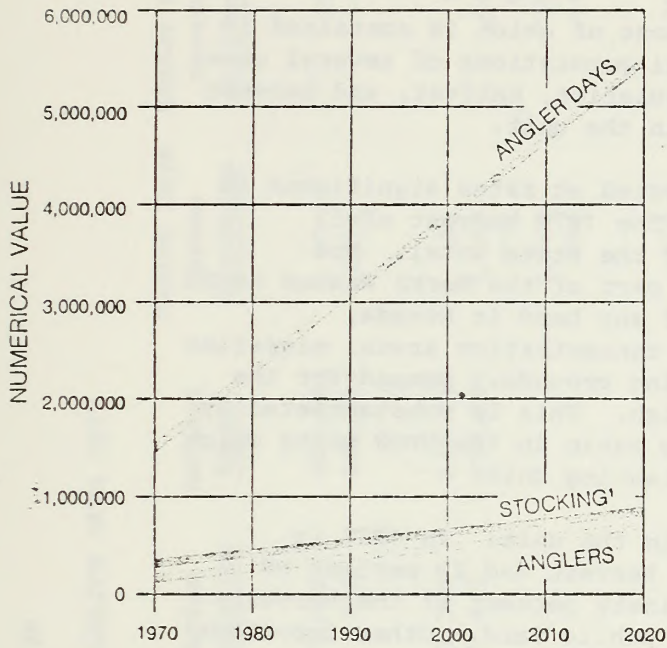
Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

^{1/} 1990 projections are based on a weighted average of a 116% population increase for Washoe County which represented 47% of 1977 hunter days and a 34% population increase for Pershing County which was chosen to represent the 53% of the remaining 1977 hunter days.

^{2/} The mule deer harvest is regulated by a quota system therefore projections probably overestimate 1990 conditions.

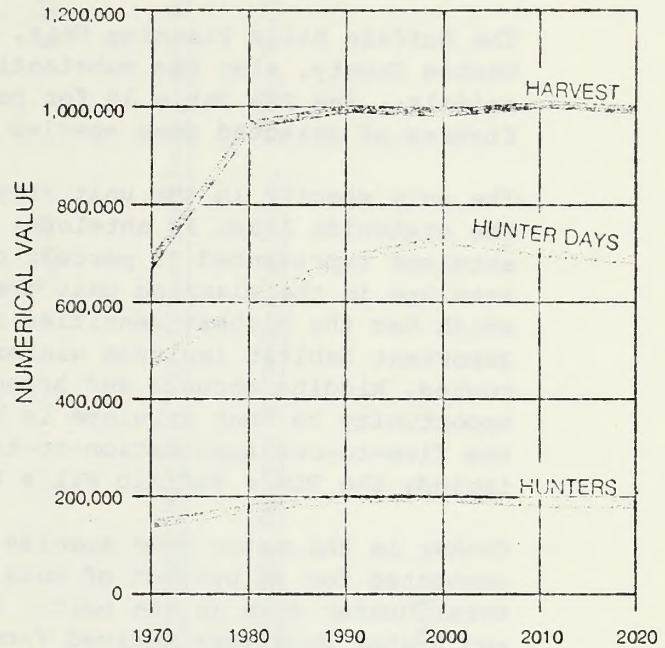
^{3/} The majority of trappers are Pershing County residents therefore trapping projections are based on a 34 percent increase. Bobcats may be regulated by a quota system in the future therefore this projection may have overestimated 1990 conditions.

GRAPH 4:
ALL FISH DATA PROJECTIONS
RESIDENT AND NONRESIDENT ANGLERS, ANGLER
DAYS AND STOCKING, STATEWIDE, 1970-2020

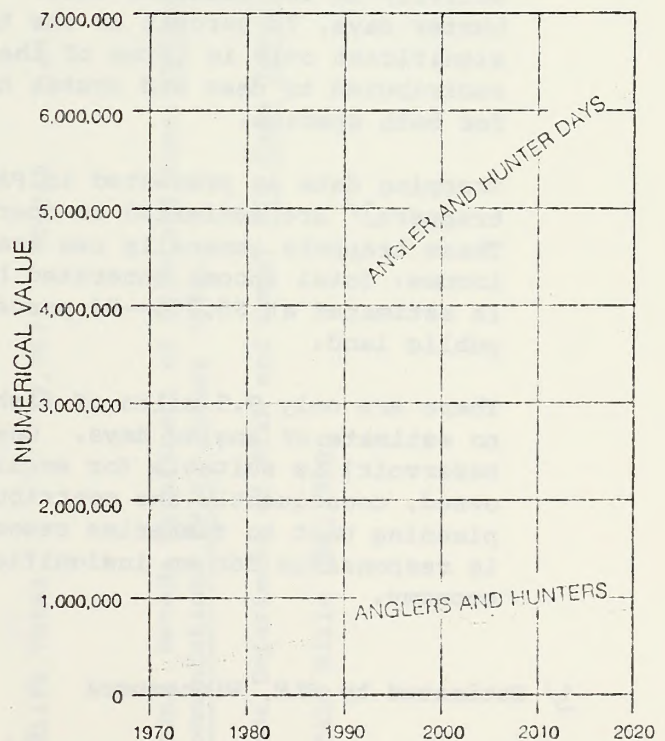


POUNDS

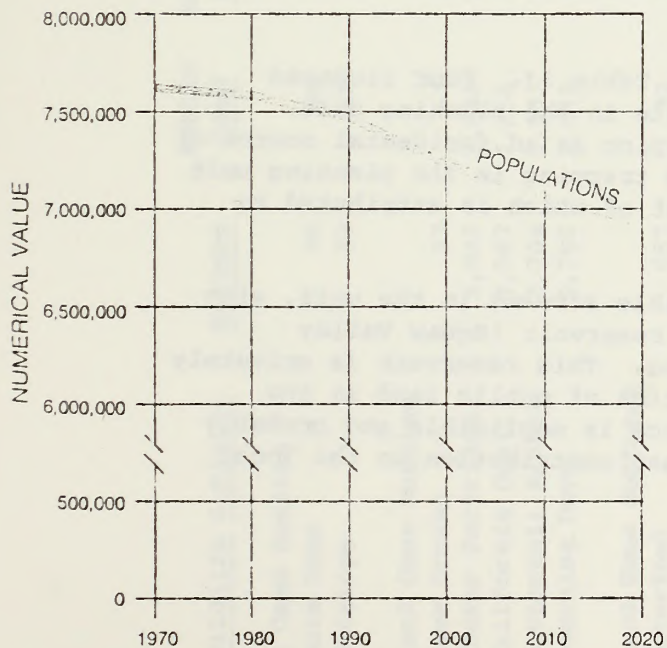
GRAPH 5:
ALL GAME DATA PROJECTIONS
RESIDENT AND NONRESIDENT HUNTERS, HUNTER
DAYS AND HARVEST, STATEWIDE, 1970-2020



GRAPH 7:
ALL FISH AND GAME DATA PROJECTIONS
RESIDENT AND NONRESIDENT ANGLERS AND
HUNTERS, ANGLER AND HUNTER DAYS,
STATEWIDE, 1970-2020



GRAPH 6:
ALL GAME DATA PROJECTIONS
POPULATIONS, STATEWIDE, 1970-2020



Source: Water For Nevada, Nevada State Engineer's Office

B. Washoe County - Buffalo Hills

Required Analysis

The Buffalo Hills Planning Unit, most of which is contained in Washoe County, also has substantial populations of several game animals. See PAA Table 30 for population, habitat, and harvest figures of selected game species in the unit.

The only species in the unit harvested at rates significant at the statewide level is antelope. The 1977 harvest of 53 antelope represented 15 percent of the state total. The antelope in the planning unit are part of the North Washoe herd which has the highest densities of any herd in Nevada. Important habitat includes winter concentration areas, migration routes, kidding grounds and breeding grounds. Demand for the opportunity to hunt antelope is high. This is substantiated by the five-to-one application-to-tag ratio in the NDOW units which include the BLM's Buffalo Hills Planning Unit.

Chukar is the major game species in the unit. In 1977 it accounted for 34 percent of total harvest and 29 percent of total hunter days in the unit. Ninety percent of the harvest and hunter days were derived from public land. Other important species include quail, rabbit and dove. Together with chukar these species account for 93 percent of harvest and 18 percent of hunter days, with public land again providing the major portion (96%) of both harvest and hunter days.

Washoe County residents were the source of most of the hunting activity in the planning unit. In 1977 they provided 5,491 hunter days, 74 percent of the total. Nonresidents were significant only in terms of the number of hunter days they contributed to deer and chukar hunting--12 percent of the total for both species.

Trapping data is presented in PAA Table 31. Four licensed trappers^{1/} are estimated to operate in the planning unit. These trappers generally use trapping as an incidental source of income. Total income generated by trapping in the planning unit is estimated at \$5,705--93 percent of which is attributed to public land.

There are only 9.5 miles of fishable streams in the unit, with no estimate of angler days. One reservoir (Squaw Valley Reservoir) is suitable for angling. This reservoir is privately owned, consequently the contribution of public land in the planning unit to fisheries resource is negligible and probably is responsible for an insignificant contribution to the local economy.

^{1/} Estimated by BLM, Winnemucca

BUFFALO HILLS WILDLIFE DATA 1977

<u>Wildlife Activity</u>	<u>Harvest</u>	<u>Public Land</u>	<u>Hunter Days</u>	<u>Public Land</u>	<u>Species Population</u>	<u>Habitat Acres</u>	<u>Hunter Days</u>		<u>Hunter Days</u>	<u>Hunter Days</u>
							<u>Washoe Residents</u>	<u>Nevada Residents</u>		<u>Nonresidents</u>
Big Game Hunting										
Mule Deer	85	76	404	364	1,650	400,000	NO	356	48	
Antelope	53	50	114	108	406	446,201	DATA	114	0	
Upland Game Hunting										
Sage Grouse	57	51	57	51	3,200	619,110	40	17	0	
Chukar Partridge	3,942	3,548	2,166	1,949	15,445	451,200	1,459	440	267	
California Quail	1,567	1,254	885	708			770	98	17	
Cottontail Rabbit	2,704	2,515	1,917	1,783			1,742	150	26	
Mourning Dove	2,702	2,513	1,031	959			906	116	10	
Upland Game Subtotal										
Waterfowl	657	33	838	42			574	260	4	
Wildlife Total	11,767	10,040	7,412	5,694			5,491	1,551	372	

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

Buffalo Hills URA, 1980

PAA TABLE 31

BUFFALO HILLS FURBEARER DATA, 1978

	Fur Harvest	Harvest from Public Land	Average Value per Pelt	Total Value	Value from Public Land
Kit Fox	6	6	9.16	55	55
Bobcat	37	34	173.94	6,436	5,914
Coyote	222	206	34.63	7,688	7,134
Badger	25	23	15.53	388	357
TOTAL	290	269		14,567	13,460

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

Income Employment

PAA Table 32 indicates the significance of wildlife in the Buffalo Hills Planning Unit to the Washoe County economy. The community of Gerlach is an important trade center for people hunting in the planning unit. The community is certainly the beneficiary of some of the income and employment generated by consumptive wildlife activities, but the actual percentage is unknown. The table indicates that public land contributes \$47,804 in income to the Washoe county economy and is responsible for the employment of five persons. Population dependence based on the 1970 population employment ratio of 3.17 is 15 persons. Chukar partridge is the source of the greatest amount of income and employment. The figure for cottontail rabbit should be treated with caution because much of the rabbit hunting is incidental to chukar hunting. The figures therefore are probably high because they may be derived by some double counting of hunter day estimates. The income and employment derived from the public land in the Buffalo Hills Planning Unit is 40 percent of the Sonoma-Gerlach Resource Area totals. The wildlife resources of the unit have greater economic importance than the remainder of the resource area because 40 percent of wildlife-generated income and employment is derived from only 28 percent of the land area.

Demand Projections

PAA Table 33 illustrates projected harvest and hunter days for the Buffalo Hills Planning Unit. Projections are based on population increase estimates of 116 percent for Washoe County by 1990. The antelope and mule deer harvest is regulated by a quota system, and it is possible that the bobcat harvest will be in the near future. Projections for these species therefore probably overestimate the actual harvest.

ECONOMIC SIGNIFICANCE OF WILDLIFE IN THE BUFFALO HILLS PLANNING UNIT 1977

<u>Activity</u>	<u>Activity Days</u>	<u>Total 1/ Expenditures</u>	<u>Direct 2/ Income</u>	<u>Total 4/ Income</u>	<u>Income From Public Land</u>	<u>Employment 5/ Employment</u>	<u>Public Land Employment</u>
Hunting Big Game							
Mule Deer	404	\$ 6,967	\$ 1,811	\$ 2,065	\$ 1,858	---	---
Antelope	114	1,754	456	520	494	---	---
Upland Game							
Sage Grouse	57	1,294	336	383	345	---	---
Chukar Partridge	2,019	52,691	13,700	15,622	14,060	2	1
California Quail	885	21,901	5,694	6,493	5,194	1	1
Cottontail Rabbit	1,917	48,046	12,492	14,245	13,247	1	1
Mourning Dove	1,031	25,461	6,620	7,549	7,020	1	1
Upland Game Subtotal							
Waterfowl	798	18,913	4,917	5,607	280	1	---
Trapping 3	-	14,567	5,003	5,705	5,306	1	1
TOTAL	7,225	191,594	51,029	58,189	47,804	6	5

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

1/ Expenditures based on \$31.27 local expenditures per day by Pershing County residents, \$15.07 local expenditures by other Nevada residents and 78.50 local expenditures per day by nonresidents. Values are adjusted for inflation (Garrett 1970) includes costs for licenses and tags but does not include other fixed costs for equipment.

2/ Expenditures are multiplied by 0.26 (the estimate of direct personal income derived per dollar of expenditure from "An Interindustry Analysis of the Elko County, Nevada" Malone and Detering 1969).

3/ Expenditures represent value of furs, income derived by multiplying number of licensed trappers (32) times average income per trapper (\$1,250.85) "Furbearer Investigations" NDFSG 1978.

4/ Direct income x 1.0785 (value added multiplier for trade sector of Humboldt Regional Model, "Water for Nevada Special Report Input Output Economic Models" 1974).

5/ Employment estimated by dividing total income by average income per employee in the trade sector (9,417) (Table 5 in Lands Section of PAA).

PAA TABLE 33

HUNTING PROJECTIONS BUFFALO HILLS PLANNING UNIT

Activity	1977 Harvest	1990 Projected Harvest	1977 Hunter Days	1990 Projected Hunter Days	1977 Species Population	Increase in 1977 Population Needed to Meet 1990 Demand	1977 Habitat Acres	Increase in Habitat Acres Needed to Meet 1990 Demand
Big Game Hunting								
Mule Deer	85	184	404	873	1,650	1,914	400,000	464,000
Antelope	53	114	114	246	406	471	446,000	517,360
Upland Game								
Sage Grouse	57	123	57	123	3,200	3,712	619,110	718,168
Chukar Partridge	3,942	8,515	2,166	4,679	15,445	17,916	451,200	523,392
California Quail	1,567	3,385	885	1,912				
Cottontail Rabbit	2,704	5,841	1,917	4,141	N	N		
Mourning Dove	2,702	5,836	1,031	2,227	O	O		
Upland Game Subtotal								
Waterfowl	657	1,419	838	1,810	D A T A	D A T A		
Hunting Total								
Trapping	290	626						

Source: Nevada Department of Fish and Game, Upland Game, Migratory Game Birds, Fur Investigations, and Hunting Season Recommendations 1978, August 1978.

Nevada Department of Fish and Game, Big Game Investigations and Hunting Season Recommendations, 1978, April 1978.

Buffalo Hills Ura, 1980

C. Public Attitudes and Social Values

Wildlife, to most of the people interviewed, means game for hunting and fish for catching.

Only two people, one a farmer and the other a current county official, mentioned wildlife in any other context than harvesting. Both said the Humboldt Sink is important for many forms of wildlife, both as stopover points for migratory birds and as home for many other forms of wildlife. Both emphasized the absolute need to keep the Sink area from any kind of encroachment by developers.

The Sink is an important bird hunting area for local people as well as Reno residents, but the Reno hunters add very little to the local economy.

Some residents said wild horses should be removed because they take forage and water from the larger wildlife species. One rancher was incensed about the horses using the already scarce water supplies on his allotment.

Several people, when asked about fencing cattle away from streams so as to improve habitat for fish, tended to hedge in their answers.

Several residents complained about out-of-state hunters getting deer and elk tags while long-time residents cannot get them. Hunting and trapping are important parts of their lives to local residents. One man said he moved back to the area for the hunting, trapping and fishing. Another said that hunting and fishing partially made up for the low salary in a small town.

One reason given for dislike of new industry and development was that the wildlife would be disturbed. It turned out that this person meant that hunting and fishing would not be so enjoyable or successful if there were additional competition.

One person scoffed at a question about endangered or threatened species, and implied that those endangered and threatened lists were just made up by the "environmentalists" to scare people.

A Fernley realtor said he thought most local people favored development over preservation of land for wildlife. He added that, after all, there's plenty of land out there for the wildlife to move onto if displaced by industrial or housing developments.

RECREATION

A. Pershing County

Analysis

Popular recreation activities in Pershing County include swimming, pleasure driving, hiking and walking, camping and picnicking. PAA Table 34 presents visitor use data for these activities in Pershing County. Figures for all activities other than hunting or fishing are based on participation rates derived by the Nevada State Park System in their Statewide Comprehensive Outdoor Recreation Plan (SCORP) 1977. The figures were derived for the State Park System's Region VI, which includes Pershing, Humboldt and Lander Counties. The participation rates refer to the "average frequency of participation per capita in an outdoor recreation activity during one season." (SCORP 1977). Each participation rate reflects the season of highest use rather than average annual participation, consequently the totals presented in the table underestimate true recreation participation. The rationale for presenting information on the season of highest use rather than annual use figures is that a peak use figure is more useful for calculating the capacity of facilities needed because facilities adequate for peak use would be more than ample for the off seasons. Participation rates by age groups and origin of participants in Region VI recreation activities are presented in PAA Tables 35 and 36. These tables are from the SCORP.

The major recreation area in the county is Rye Patch Reservoir with a surface area of approximately 11,000 acres. The shoreline is a combination of federal, state and private lands with about five percent managed by the BLM. The majority of the fishing and water sports activities in the county takes place at Rye Patch. In 1977 annual recreation usage was 70,067 park visitations.^{1/} The reservoir has a state park with facilities (located near the dam) consisting of camping pads, outhouses, a boat launching ramp, and picnic tables.

The percentage of dependence on public land for outdoor recreational activities in the county is 36 percent. Activities with a high dependence on public land include camping, picnicking, backpacking, off-road vehicles, motorcycle riding and horseback riding. Collecting, both vegetative and rock/mineral, is a popular activity in the county and has a high degree of dependence on public land. The SCORP did not estimate participation rates for this activity but indicated that collecting is usually associated with other activities such as sightseeing, camping, backpacking and off-road vehicle use.

^{1/} A park visitation means one visit of any duration for any purpose.

PAA TABLE 34
Pershing County Visitor Use Data* 1977

	Pershing County Total (visitor days)	Public Land ^{3/} Total (visitor days)
Hunting	16,814	6,429
Fishing	27,083	1,761
General Recreation ^{1/}		
Winter Sports	2,064	1,032
Water Sports	17,783	889
Sightseeing ^{2/}	33,488	17,749
General Pleasure		
Camping	7,304	5,040
Picnicking	12,639	7,583
Backpacking	494	445
Off-road Vehicles	1,875	1,688
Motorcycle Riding	5,424	4,610
Horseback Riding	5,743	3,446
General Pleasure Subtotal	33,479	22,101
Recreation Total	130,711	48,929

^{1/} General recreation figures underestimate true recreation activity in the county because they are based on participation rates developed by the Nevada Parks Department. These rates estimate participation during the major season of occurrence .

^{2/} Sightseeing includes pleasure driving, hiking and walking, nature study and visiting historical sites.

^{3/} Public land recreation use is based on rough percentage estimates computed by the BLM District Office Winnemucca 1980.

* Nevada Parks Department did not estimate the participation rate in collecting activities which is an important recreation activity in Pershing County. Collecting activities are generally included in other activities and will therefore be included in such things as sightseeing, camping, backpacking and off-road vehicle use.

Source: Recreation in Nevada Statewide Comprehensive Outdoor Recreation Plan, (SCORP) 1977.

PAA TABLE 35
PARTICIPATION RATES - REGION VI 2/

ACTIVITY	AGE GROUP ^{1/}					Weighted Average Of all Age Groups
	1	2	3	4	5	
Pleasure Driving	2.57	1.00	3.38	3.87	2.88	1.86
Swimming	12.57	3.77	5.51	1.31	0.00	5.12
Waterskiing	0.64	0.00	0.40	0.00	0.00	0.25
Skin Diving	0.00	0.00	0.00	0.00	0.00	0.00
Fishing	1.57	1.85	2.15	1.75	1.55	1.84
Motorboating	0.64	0.08	0.62	0.37	0.00	0.41
Nonmotorboat	0.00	0.15	0.15	0.00	0.00	0.07
Biggame Hunt	0.91	4.03	1.56	1.82	0.00	1.81
Small Game	1.69	4.94	2.21	4.68	1.04	3.08
Picnicking	0.78	4.00	3.75	0.81	2.44	2.42
Tent Camping	0.93	1.61	1.42	1.00	0.00	1.14
Vehicle Camp	0.14	0.15	0.18	0.68	0.00	0.27
Bicycling	10.28	21.23	2.80	0.00	0.00	6.74
Horse Back Riding	0.71	0.00	5.42	0.06	0.00	1.79
Hiking	0.07	2.61	3.24	1.18	1.14	1.84
Backpacking	0.07	0.31	0.04	0.06	0.00	0.10
Mtn Climbing	0.00	0.00	1.00	0.50	0.00	0.42
Relax Outdoor	13.14	0.00	18.84	11.50	10.44	11.84
Nature Study	0.00	2.31	3.55	0.43	0.33	1.62
Golf	0.00	0.00	0.60	0.06	0.66	0.25
Play Games	1.71	3.31	3.07	0.06	0.00	1.88
View Sports	2.14	0.00	2.24	0.21	0.00	1.14
Drama	0.00	0.00	0.02	0.03	0.00	0.01
Motorcycle Riding	0.00	7.08	2.04	0.00	0.00	1.91
Racing	0.00	0.00	0.00	0.00	0.00	0.00
Hist Sites	0.65	0.00	0.00	0.00	0.00	0.13
Off-Road Vehicles	0.91	0.00	0.00	0.39	0.00	0.27
Animal Event	0.00	0.00	0.91	0.00	0.00	0.27
Gardening	1.82	3.51	6.78	5.59	3.82	4.68
Snowski	0.49	1.04	0.26	0.39	0.00	0.46
Ice Skating	0.00	0.00	0.00	0.00	0.00	0.00
Snow Play	1.69	1.00	0.65	0.20	0.00	0.76
Tennis	0.00	2.95	0.56	0.00	0.00	0.71
Baseball	0.00	11.23	1.13	0.00	0.00	2.40

Source: SCORP, 1977

^{1/} Age Group 1 = $\leq$ 10; 2 = 10-19; 3 = 20-44; 4 = 45-64; 5 = 65+

^{2/} Participation rate - average frequency of participation per capita in an outdoor recreation activity during one season. Unless otherwise indicated, each participation rate reflects the season of highest use rather than average annual participation.

TABLE 36

PERCENT OF PARTICIPATION IN ACTIVITIES IN AREA VI BY RESIDENTS OF EACH REGION AND OTHER STATES

Age Group	Region I		Region II		Region III		Region IV		Region V		Region VI		Lake Tahoe		Idaho		Calif		Utah		Arizona		Oregon		All Other States	
	%		%		%		%		%		%		%		%		%		%		%		%		%	
Driving for Pleasure	21.9		4.4		6.7		2.2		6.3		47.1		2.2		2.8		1.8		2.2						2.2	
Swimming			0.3				0.3		2.1		92.7		0.3				2.1								2.1	
Waterskiing											91.3						8.7									
Skin and Scuba Diving																										
Fishing	2.2		1.5		3.0		6.8		8.3		67.7				6.0						4.5					
Motor Boating			8.3				8.3				70.8				8.3		4.2									
Nonmotor Boating									18.2		63.6						18.2									
Big Game Hunting					6.7						86.7				6.7											
Small Game Hunting			2.8								94.4						2.8									
Picnicking	2.9				12.5				2.9		53.9				2.2		23.6		11.7						1.7	
Tent Camping							20.8		11.7		55.8															
Trailer Camping			6.7				6.7		30.0		40.0				6.7											
Bicycling	1.8				1.8						94.5						1.8									
Horseback Riding					9.7						87.9								2.4							
Hiking and Walking			0.3						2.5		97.2															
Backpacking							30.2				54.7								15.1							
Mountain Climbing											100															
Relaxing Outdoors	11.1				11.1						66.6						11.1									
Nature Study			0.8				0.8				97.5															
Golf	5.3						14.0				38.6															
Snow Skiing											100*															
Ice Skating																										
Snowplay																										
Playing Games	1.9										66.2															
Tennis**																										
Baseball**																										
Viewing Outdoor Sports	1.3										53.5															
Drama and Concerts	8.3						16.7				75.0															
Motorcycle Riding	0.5										99.5															
Racing											100															
Gardening**																										
Visiting Hist. Sites																										
Other											100															

Source: SCORP, 1977

* Undeveloped ski areas

**Information incomplete at this time.

Region I - Churchill, Lyon, Douglas, Washoe, Storey and Ormsby Counties

Region II - Nye, Mineral and Esmeralda Counties

Region III - Clark County

Region IV - Lincoln, White Pine and Eureka Counties

Region V - Elko County

Region VI - Humboldt, Pershing and Lander Counties

Income Employment

PAA Table 37 indicates the economic significance of recreation activities to the Pershing County economy. It should be remembered that visitor day data, except for fishing and hunting, represent the peak season of use data (not the entire calendar year) and therefore underestimates the true value of recreation to the local economy. The impact of recreation activities is felt primarily in the trade and service sectors, therefore, employment is estimated by dividing total income generated by recreation activity by average income in the trade sector (the service sector is not included because income data was not available.) Total income from recreation was \$192,987 in 1977. This figure represents 1.38 percent of total county income but 8.5 percent of income to the trade sector. This activity generates employment for 20 people in the county. Income dollars and employment numbers from recreation on public land is \$72,433 and 8 persons respectively. Eighteen persons are dependent on public land employment, based on a population-employment ratio of 2.21.

Demand Projections

Projections for future recreation activity in Pershing County are presented in PAA Table 38. These figures, except for hunting and fishing which are based on population growth, are based on growth projections derived by the Nevada State Parks System, in SCORP. The projections indicate increases ranging from 16 percent for winter sports to a high of 33 percent for motorcycle riding. Hunting and fishing are heavily influenced by the 116 percent growth rate projected for Washoe County. Residents of Washoe County contribute a large number of visitor days to the county's hunting and fishing activities.

B. Washoe County - Buffalo Hills

Analysis

Popular recreation activities in this planning unit include collecting, sightseeing, hunting, camping and ORV use. Bathing in some of the hot springs dotting the area was also a popular activity. The hot springs that are good for bathing lie on private land and the death by scalding of an inebriated individual in a 'nonbathable' hot spring caused the owner to close the hot springs to public entry. At present the only developed recreation site is near the Great Boiling Hot Springs by Gerlach and is administered by Washoe County. The Black Rock Desert, a vast expanse of completely barren land, is one of the most popular areas for sightseeing and ORV use. The National Park Service rejected a proposal to designate a portion of the desert as a national monument, but the decision is currently under appeal.

TABLE 37

ECONOMIC SIGNIFICANCE OF RECREATION ACTIVITIES - PERISHING COUNTY 1977

Recreation Activity	Visitor Days	Expenditure per Visitor Day 1/	Direct Income 2/	Total Income 3/	Percent of County Income 4/	Employment 5/	Percent of Activity on Public Land 6/	Total Income Derived from Public Land	Percent of County Income	Employment Derived from Public Land
Hunting	16,814	13.23	93,186	100,501	0.72	11	39	38,972	0.28	4
Fishing	27,083	4.63	32,602	35,162	0.25	4	6.5	2,285	0.02	-
General Recreation										
Winter Sports	2,064	2.65	1,422	1,534	0.01	--	50	767	<0.01	-
Water Sports 7/	17,783	1.73	7,998	8,626	0.06	1	5	431	<0.01	-
Sightseeing	33,488	3.26	28,384	30,612	0.22	3	53	16,224	0.12	2
General Pleasure										
Camping	7,304	5.29	10,046	10,835	0.08	1	69	7,166	0.05	1
Picnicking	12,639	2.58	8,478	9,143	0.06	1	60	5,486	0.04	1
Backpacking	494	2.58	331	357	<0.01	--	90	321	<0.01	-
Off-road Vehicles	1,875	5.57	2,715	2,928	0.02	--	90	2,635	0.02	-
Motorcycle Riding	5,424	5.57	7,855	8,472	0.06	1	85	7,201	0.05	1
Horseback Riding	5,743	1.26	1,881	2,029	0.01	--	60	1,217	0.01	-
General Pleasure										
Subtotal	33,479		20,640	33,764	0.24	3		24,026	0.17	3
Recreation Total	130,711		170,271	210,199	1.50	22		82,705	0.59	9

1/ Expenditures for hunting and fishing from wildlife section for Recreation expenditures are derived from Statewide Comprehensive Outdoor Recreation Plan Part Two, Nevada State Park System, 1967.

2/ Direct Income = expenditure/visitor day x visitor days x 0.26 (multiplier for income from Malone and Detering 1969).

3/ Total income = Direct income x 1.0785 (multiplier from Water for Nevada Special Report Input Output Models Nevada State Engineering Office 197_).

4/ Total county income = \$13,985,000 Bureau of Economic Analysis 1979.

5/ Employment = Total income / \$9,417 (average income in the trade sector of Pershing County - see lands section).

6/ Percentages estimated by BLM Winnemucca 1980.

7/ Water sports activities include: motorboating, waterskiing, nonmotorboating, and swimming. Expenditures are based on a weighted average of these activities.

No estimates of visitor use for any areas in the planning unit are available, but it is known that the Black Rock Desert receives the largest number of visitations. The greatest potential for an increase in recreation use stems from the national monument proposal. The magnitude of the impact would depend on the extent of the development planned by the National Park Service, which at present is unknown.

PAA TABLE 38
PERSHING COUNTY RECREATION DEMAND PROJECTION

Recreation Activity	1977 Visitor Days		1990 Visitor Days		Percent Increase 1977-1990
	Total	Public Lands	Total	Public Lands	
Hunting	16,814	6,429	28,920	11,279	72
Fishing	27,083	1,761	42,229	2,940	56
General Recreation ^{1/}					
Winter Sports	2,064	1,032	2,397	1,198	16
Water Sports	17,783	889	21,517	1,076	21
Sightseeing	33,488	17,749	44,204	23,429	32
General Pleasure					
Camping	7,304	5,040	8,765	6,048	20
Picnicking	12,639	7,583	16,683	10,010	32
Backpacking	494	445	563	507	14
Off-road Vehicles	1,875	1,688	2,288	2,059	22
Motorcycle Riding	5,424	4,610	7,214	6,131	33
Horseback Riding	5,743	3,446	7,523	4,514	31
General Pleasure					
Subtotal	33,479	22,101	43,036	29,269	29
Recreation Total	130,711	48,929	182,303	69,191	41

^{1/} General Recreation projections are derived from projection mode in the Statewide Comprehensive Outdoor Recreation Plan, Nevada State Park System, 1977. These figures represent visitor use during the highest season of use, not annual visitor use.

C. VISUAL RESOURCE MANAGEMENT

Visual sensitivity is classified according to the number of people who are apt to see the area and also by users' attitude toward change in the area's appearance. Another rating criterion is the distance of the viewer (or at least the majority of the viewers) from the area being rated.

For further information regarding this classification process see the Visual Resource Management report in the Recreation Information System files in the Winnemucca BLM office.

Additional information about the Scenic Quality ratings may be found in the Unit Resource Analysis for the Blue Wing, Buffalo Hills and Sonoma Planning Units; in the Management Framework Plan and on the recreation overlays for the planning system. The latter two show the final visual resource management ratings for all areas of the Sonoma-Gerlach Resource Area. All these documents may be seen in the Winnemucca District Office.

Each of the three planning units in the Sonoma-Gerlach Resource Area have areas in each of the Visual Resource Management categories. For specific areas' ratings see the map overlays for the Unit Resource Analyses, the Management Framework Plans and the Sonoma-Gerlach PAA. All are available in the Winnemucca District Office.

D. RECREATION-Public Attitudes and Social Values

Recreation in relation to public land seems to mean hunting, fishing and ORV use to most residents of the Sonoma-Gerlach Resource Area. These activities are, however, extremely important to the people interviewed--very often the main reasons for living in the area.

Only a few people mentioned hiking, walking or camping out as uses for the public land. A bowling alley, golf course and theater were most often mentioned as needed for recreation by Lovelock residents. Then, when asked if there were recreational uses the the BLM could develop the land for, one person said golf course. Another said archery range.

Local people see no need to block off any areas as wilderness, while the Sierra Club and other city-based conservation and recreation-oriented groups want more wilderness. Many people are anti-wilderness because of the ban on vehicles in a wilderness area. The interviewees seemed to feel that their personal liberties were threatened if they could not drive wherever they pleased. Driving around on the range or in the mountains seems to be one of the most popular uses of public lands, right in there with hunting and fishing.

The road closure at Blue Lake (in the Paradise-Denio Resource Area) was criticized by several people because it kept some people from seeing the lake. One person said he is concerned about the environment but also thinks it's not good to keep people away.

Rock collecting was mentioned by one person as another reason for off-road vehicle use and freedom. This person said rock collecting brings in tourists and, therefore, money.

The Pershing County Commissioners said they see no need for any public land for recreation uses. According to one Lovelock resident, the County could have received a grant from the Federal Government a few years ago to build a golf course and maintain it for five years. But the County Commissioners turned down the grant.

This same person said the State offered to pave some area near the new freeway exchange for tennis courts and then give it to the City of Lovelock, but the city said no. The impression left with the public, according to the local residents, was that the city and county officials felt recreation was not important enough to spend money for.

The questionnaire results show a majority of both Pershing and Humboldt residents favoring the State's spending more money to expand recreation (separate from gaming) as an economic activity (The Governor's Commission on the Future of Nevada 1980).

A Fernley resident said rock-hounding is popular with local people. A local developer is planning a golf course on private land. The chairman of the Fernley Town Board said the Board has talked of needing more land for recreation purposes (a rodeo was mentioned) but no specific uses or decisions have resulted.

E. CULTURAL RESOURCES-Public Attitudes and Social Values

Local people are interested in history, according to the area archeologist, and many are serious arrowhead collectors. Many people said they hate to see the relics found in this area being sent to far off places even if they do go to museums. Local people want the finds kept in the community and would like to know more about the artifacts also.

Part of the Applegate-Lassen Trail across the Black Rock Desert is listed in the National Register of Historic Places and thus has some protection. For example, approval must be received from the State Historic Preservation Officer before any surface-disturbing activity may take place in a one-mile-wide corridor around the Applegate-Lassen Trail. Many local people are interested in the trail and its history.

A 1979 editorial in the Humboldt SUN ridiculed the ban on the public's picking up arrowheads, and a Pershing County Commissioner said the 'arrowhead bit' is ridiculous. Some publicity about the usefulness of arrowheads in determining local history might be useful.

One person in Fernley said most people believe in saving the cultural resources but not at the expense of a no-development situation; however this person is pro-development.

The following is excerpted from the Paradise-Denio PAA:

Many residents of the planning area, as well as outsiders, believe that collection of historic and prehistoric artifacts, particularly arrowheads, is a legitimate use of the public lands. These people consider it to be a form of recreation, a treasure hunt of sorts. They cannot conceive that arrowheads and other artifacts have any significance beyond the esthetic value of how attractive they will look mounted on their living room wall. Persons interviewed expressed the opinion that much of the time and money invested in archeological studies was a waste--another case of preservationists having more say over the use of the public lands than local people.

On the other hand most people seem to feel that rockshelters and petroglyphs, as well as historic structures in gold mining towns, do warrant preservative and protective measures. Their more sympathetic feelings toward these is probably based on the more striking appearance of these prehistoric and historic sites. However, a need for more public education efforts is also indicated by these attitudes. One person who could see no real value in arrowheads said that rockshelters and petroglyphs should be preserved because they were time indicators. This is exactly what projectile points (arrowheads) represent to the archeologist.

Both the Chamber of Commerce and the editor of the Humboldt Sun felt that there was historical interest in the community, but believed that signing or publication of literature concerning specific historic or prehistoric sites would endanger these resources by drawing attention to them. The editor felt that general background articles on the history and prehistory of the area, and ethnic groups--particularly the Chinese--would be enjoyed by the populace and the newspaper would be willing to print those.

The Humboldt County Museum expressed appreciation toward Bureau cultural resource personnel who have provided assistance in terms of identification of artifacts and donation of documentary photographs and reports. They favor interpretive signing of old mining towns and archeological sites and other interpretive efforts, such as signing, informative literature, and displays, though they themselves have no funding available. They have a quarterly publication and they are eager to have contributions to it from the District BLM archeologists. Four-wheel drive access was not favored where historic and prehistoric resources might be threatened.

The Humboldt County library would appreciate contributions of BLM reports dealing with the history and prehistory of the region.

WILDERNESS

A. Analysis

The wilderness program was created with the passage of the Wilderness Act of 1964. This act directed the Forest Service, Fish and Wildlife Service, and the Park Service to conduct wilderness inventories on the lands they administer. The act further indicated what criteria were to be used for wilderness designation. That criteria was and is still: 5,000 roadless acres, unless the area is an island or has some outstanding characteristics which justify its preservation and designation; the area is to be natural and pristine in nature with the imprint of man substantially unnoticeable, a place where man is a visitor but does not stay; and lastly, the area should have outstanding opportunities for solitude and/or primitive recreational opportunities. The previously mentioned agencies identified millions of acres that met these qualifications and now approximately 19 million acres are within the National Wilderness Preservation System.

The BLM was not required to conduct a wilderness inventory until the passage of the Federal Land Policy and Management Act of 1976. This law instructed the Bureau to conduct a wilderness inventory on the 450 million acres of public land under its administration and to have it completed by 1991. Never in the history of the BLM has there been such a massive inventory in the allotted time frame. Congress has until 1991 to make its final decision regarding designation of wilderness study areas as wilderness or not.

The inventory is divided into three stages: Initial, Intensive, and Wilderness Study Area. The Sonoma-Gerlach Resource Area is currently in a transition period between the Intensive and Wilderness Study Area stages. The initial inventory studied all areas that could conceivably qualify as wilderness (criteria in paragraph one above) and eliminated those with obvious non-wilderness traits. The intensive inventory stage is a field inventory conducted on all areas not eliminated during the initial inventory phase. It requires an extensive field review of all remaining areas, identifying all man-made intrusions and evaluating the area by wilderness criteria.

Upon completion of the intensive inventory stage, those areas that met the wilderness criteria are recommended to become Wilderness Study Areas. Six areas with a total acreage of 365,400 acres have been recommended as WSAs in the Sonoma-Gerlach Resource Area. These areas will be required to have mineral surveys conducted by both the United States Geological Survey and the Bureau of Mines. Information gathered on the WSAs will be consolidated and considered in the Bureau's land use planning system and in the final decision by Congress on whether to designate an area as wilderness or not.

To date the Bureau has not developed procedures for socio-economic analysis of its wilderness programs in its planning system. A few general comments, however, can be made. Generally, designation of an area as wilderness results in an increase in the number of visitor days to the area. This increase is partly due to the mere existence of a wilderness area in a specific locale. Many visitors are drawn to wilderness areas because they feel that the label "wilderness" indicates there is something worth visiting and therefore they should visit it. Without regard to the motive for visitation it is known that visitor use generally increases. The increase in visitation can be expected to have some impact on the service sector (motels, restaurants, stores, and service stations) of the local economies.

- The areas identified as Wilderness Study Areas in the Sonoma-Gerlach Resource Area generally lie along the western section of the area. The community within the resource area most likely affected by an increase in visitor use would be Gerlach which lies roughly in the middle of the six areas recommended as WSAs. The recommended WSAs in the Sonoma-Gerlach Resource Area have little or no potable water. This factor will probably reduce the demand for wilderness experiences because much of the current wilderness use is water related. Consequently any impact on local economies would probably be quite small.

B. WILDERNESS-Public Attitudes and Social Values

Disapproval of wilderness is almost universal in the Sonoma-Gerlach Resource Area. More than three-fourths of the approximately 40 people interviewed scoff at the whole concept of wilderness.

Objections focus on the banning of motor vehicles in a wilderness area. The people interviewed want to drive to their destination, not walk, whether the trip is for hunting, fishing, sightseeing, prospecting or any other purpose.

The word "environmentalist" is often spoken with a sneer, yet so many of the local people have a close feeling for the land and want to save the very same qualities the environmentalists do. Local people are, however, more open to some uses of the land, such as mining and prospecting.

Prospecting is very popular in the Sonoma-Gerlach Resource Area and the prospectors are vehemently opposed to any wilderness. One person said wilderness should not interfere with mining, and another that it was wrong to lock up lands with minerals or even if there there was a chance of minerals. Most interviewees who oppose wilderness areas use the nation's need for minerals as a reason for keeping all the land in the multiple use category.

The county commissioners feel there is no land in Pershing County that qualifies as wilderness, i.e., is at least 5,000 acres in size, pristine in nature with the imprint of man substantially unnoticeable and possessing outstanding opportunities for solitude and/or primitive recreational opportunities. The commissioners, along with many other people, point out that the entire county is criss-crossed with roads and full of leftover machinery, buildings and tailings from old mining operations. One person is concerned that wilderness areas may eliminate vehicular access to other areas.

Two people say that wilderness areas, if named as such, will attract so many tenderfoot types that many accidents or even fatalities could occur. They also worry about the costs to the county for so many search and rescue operations. They say there are many poisonous springs and streams (dangerous to unknowing visitors) and also that the expanse of the Black Rock Desert is deceiving to visitors who might try to walk across it and find the distance is greater than expected.

Geothermal steam for energy use is a real possibility in much of the Sonoma-Gerlach Resource Area and especially in the Black Rock Desert area. But traces of emigrant trails, used in the 19th century by westward-traveling pioneers, are still to be seen in the Black Rock Desert. These historical signs, along with the Desert's scenic traits, have made it a candidate for wilderness or natural area status.

Most local people prefer development of the Black Rock to preservation of its cultural and scenic resources.

In general, local residents of the Sonoma-Gerlach Resource Area prefer the multiple use concept (rather than preservation for cultural, scenic or recreational resources) because the options are open for possible development and economic improvement for their area.

The following is excerpted from the Paradise-Denio PAA:

All four [wilderness] meetings were attended by a varied population of user groups. The groups represented included mining, grazing, ORV, trappers, and wilderness advocates. The largest percentage of the people were from mining, with ranching second, and ORV, trapping, and wilderness advocates, respectively. From the meeting there was much concern from the general public. The people expressed considerable concern that the federal government was going to make everything wilderness and force everyone out of business. It is very obvious from the meetings that there is little trust in the federal government.

The inventory procedures require a step-by-step process eliminating areas along the way until the final areas are identified. From the verbal comments received from the meetings and the written comments received from the comment period, the idea of the general public is to eliminate as many areas now rather than waiting later when they feel it may be more difficult.

To summarize the general public meetings, it is safe to say that 95% of the people attending were against any type of wilderness designation in Humboldt County.

The ranchers felt sure that their cattle allotments would be affected. They furthermore related that large numbers of people would scare their cattle off the tops of the mountains during the summer.

The ORV groups felt that they should have the right to use existing roads and ways and go cross-country if so necessary to reach their destination. They further related that the majority of the hunters and sportsmen use their 4-wheel drive rigs in this manner.

The miners felt that the BLM was trying to place restraints on the mining law of 1872. They feel it is their God-given right to prospect and explore for minerals on all public land. They further related that wilderness would lock up some of our nation's most valuable mineral resources from exploration. The prospectors deplore the idea of having to request permission from anyone, especially the Bureau, before they can make a road or do any surface disturbance. In the opinion of the mining industry, many of the areas recommended for intensive wilderness study obviously lack wilderness characteristics. This dilemma of what is obvious and what is not has caused serious problems and much confusion throughout the general public and the Bureau.

Two wilderness advocates attended the public meetings in Winnemucca. They were in favor of the Blue Lakes exclosure and further study for the area. Very few written comments were received from wilderness advocates. One letter was received from the wilderness organizations throughout the state concurring with the initial inventory findings, with the exception of Unit NV-020-822 (Snowstorms).

The trapping industry is well represented in the Paradise-Denio Planning Area. The trappers voiced their concern that if areas became wilderness it would greatly limit access to their traps. Presently they use existing roads and ways, but often drive cross-country to check and set traps.

No precise calculations have been made on the number of public comments received during the 90-day public comment period for the initial inventory, but it is safe to say that 90% were not in favor of wilderness (Jim Cameron, District Wilderness Coordinator, August 1979).

Interviews with local residents, during the preparation of the PAA indicated the following additional prevailing concerns and attitudes:

1. Access should not be closed off to wilderness areas because the number and types of people who would be able to use them would be limited to a certain age group and state of health. Citizens of McDermitt feel particularly strongly about this point. McDermitt itself does not hold many recreational opportunities so they consider the public lands to be their playground. They feel that wilderness designations would entail cutting off access to hunting, fishing and camping in these areas.
2. There is a need for some wilderness as it is the naturalness of this area which makes it attractive. However, the BLM is asking for more wilderness areas than are necessary. The establishment of wilderness areas should not jeopardize the local economy.
3. Existing laws and management are adequate to protect these areas. Money should be spent on determining better ways to manage these areas and on personnel to enforce existing laws and policies rather than on wilderness studies.
4. Rather than locking up vast areas of public lands for wilderness, it should be preserved for multiple use (State Multiple Use Advisory Committee on Federal Lands).
5. Miners expressed concern over air quality standards associated with wilderness areas which might affect mining operations in close proximity to these areas (Peggy McGuckian, PAA interviews, August 1979).

INFRASTRUCTURE AND BUREAU RELATIONSHIPS

TAX BASE AND PUBLIC FINANCE CAPABILITY

The tax base for Pershing county is the assessed valuation of the real property within the boundaries of the taxing unit. PAA Table 39 illustrates the assessed value of the tax bases for the local government taxing units. The local government unit rate is the mill levy on a dollar of real property (the amount of tax, in cents, to be paid on a hundred dollars of real property). The Nevada State property tax is .25 mills. The local tax rate when combined with the state rate is limited by the state constitution to 5.00 mills. For 1979-1980 the Nevada State Legislature placed a new limit on the combined tax rate of 3.64 mills. The combined rate for Pershing County was 3.28 mills in fiscal year 1978. The rate for the city of Lovelock is 3.64 mills which placed the city at the legislated limit. Lovelock's high rate is due to the recent passage of a three-million dollar bond issue for school construction which added .63 mills to the previous rate. The three million dollar bond leaves the city with no uncommitted bond capacity.^{1/} The lack of any uncommitted bonding capacity will limit the ability of the city to expand municipal facilities. The city, however, has previously expanded water supply and sewer capacities to enable it to absorb a large increase in population; consequently, although bonding capacity is fully committed, it is not expected to restrict the ability of the city to respond to population growth.

Other sources of revenue for the county include payments from both the state and federal governments. PAA Table 40 indicates the source and amounts of these revenues.

The Bureau of Land Management helps support the county's infrastructure through in-lieu-of-tax payments. In-lieu-of-tax payments are payments made to local government units having nontaxable federal lands within their borders to compensate them for the burden resulting from the tax immunity of these lands. In fiscal year 1979, the in-lieu-of-tax payment to Pershing County was \$128,000.^{2/} This payment was distributed among the county's general fund, road fund, and medical services fund. Indirect payments from the Bureau of Land Management also contribute to the county's revenue. Fifty percent of the receipts for mineral leasing and five percent of the materials sales by the BLM are paid to the state. The lease payments are allocated to the school distributive fund. In 1979 resource area mineral receipts contributed approximately \$337,000 (mostly from geothermal leases) to the state, while materials receipts contributed only a minor amount to the state.

^{1/} Personal communication, Pershing County Treasurer's Office 1980.

^{2/} Bureau of Land Management, Nevada Statistics 1979, 1980.

The tax base in the smaller outlying communities is narrow, therefore these communities are ill-equipped to expand their social services in order to deal with a rapid change in population due to a mining boom such as the reopening of the tungsten mine near Imlay and Mill City. The increase in revenues from the tax on the net proceeds of mines should partially offset the lack of revenues necessary to expand social services in these communities. However, there will be a time lag between the point at which additional social services are necessary and the point that the increased revenues become available.

PAA TABLE 39
ESTIMATED FEDERAL AND STATE PAYMENTS
TO PERSHING COUNTY GOVERNMENTS
FISCAL YEAR 1979-80

Federal

Department of Interior In Lieu of Taxes	139,150
Office of Revenue Sharing Revenue Sharing	43,000
CETA	2,970
Federal Subtotal	185,120

State

Motor Vehicle Privilege Tax	57,980
Cigarette Tax	25,971
State Liquor Tax	5,005
County/City Relief Tax	34,364
State Gaming License Fees	123,529
State Subtotal	246,849
GRAND TOTAL	431,969

Source: Pershing County Budget 1979-1980

PAA TABLE 40
SONOMA-GERLACH
LOCAL GOVERNMENT TAXING UNITS ASSESSED VALUATION
1973-1979
(Dollars)

Local Government Taxing Unit	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79
Pershing County	25,376,424	27,529,989	34,527,323	36,500,206	38,518,737	40,414,374
Lovelock	3,061,000	3,152,867	4,531,901	4,692,336	4,694,852	4,731,366
Pershing County Schools	25,376,424	27,539,989	34,527,323	36,500,206	38,518,737	40,414,374
Gerlach Gen. Imp. District					10,410	114,615

Sources: Nevada Department of Taxation, 1979.

Personal communication, Nevada Department of Taxation, 1980.

COMMUNITY FACILITIES

Lovelock

Lovelock has an almost new library, large outdoor swimming pool and tennis courts in the city-county-school complex.

A park around the County Courthouse provides picnic tables and shade trees.

The only other park in Pershing County is the Rye Patch State Park about 25 miles northwest of Lovelock. This park offers opportunities for boating, swimming, fishing, water-skiing, picnicking and camping.

Meetings and other group functions take place in the basement of the County Courthouse, in a school building, in the library or in one of the churches.

Lovelock's biggest community event of the year is the Frontier Days in August, in conjunction with the Pershing County Horseman's Association Rodeo. The July 4 celebration is also a community affair with races and a children's parade. In the summer hot rod races are held each Saturday evening.

Ten churches are located in Lovelock.

The Indian Colony in Lovelock is not part of the city although city sewer and water services are available. Of the approximately 40 houses in the colony, 35 have been built since 1971 under federal government projects. There is also a gymnasium for the residents to use.

Gerlach-Empire

The two school buildings in Gerlach and Empire are available for meetings and group affairs. A small rest stop/picnic area is just out of town. U.S. Gypsum's golf course and swimming pool at Empire are available to all local residents.

Fernley

Fernley has few community facilities but is only 35 miles from Reno. A local developer has plans for a golf course and swimming pool and local people say they are working for more services from Lyon County and for federal grant money.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

The City of Winnemucca has a new indoor swimming pool equipped with a sauna, and an outdoor swimming pool. A nine-hole golf course is maintained by the city and special services include a children's golf program. Four lighted tennis courts and two parks with picnic facilities are also located in town. In addition, there are county-owned picnicking facilities in Water Canyon. Nixon Hall is a renovated opera house which has a stage and an auditorium seating approximately 500. This is used for conventions and music and drama performances. The new Fine Arts Gallery, also housed in Nixon Hall, provides local artists with opportunities to display and sell their arts and crafts. Other public facilities in the community include the Humboldt County Library, the Humboldt County Museum, and the Humboldt County Fairgrounds where livestock exhibits for the Tri-County Fair, rodeos, horse shows, and chariot races are held. There are also a movie theater (open four nights a week) and two casinos in Winnemucca.

Most community facilities are considered adequate for present needs and for those accompanying moderate growth. A state imposed cap on spending has created some concern about the financing of facilities such as the new pool. There is also interest in the community in the building of a convention center. It is felt that a convention center has a great deal of potential in Winnemucca and that the additional business brought into the community by it would be beneficial to the local economy. Also, it would provide a sorely needed meeting place for the town. A room in the library used for conferences will probably soon be required for accommodating an increased bilingual collection as well as other new volumes. The present stage in Nixon Hall also has technical faults which detract from the quality of performances and presentations which take place there. Final decisions on location, financing, and facilities to be included have yet to be made. It is unlikely that public land will be utilized for this project, as all presently proposed building sites are on private land.

Although the present golf course is more than adequate for present needs, a new 9-hole golf course is included in the General Plan. There is no immediate demand for a second golf course but when the need arises, public land may be requested for this purpose. Other planned improvements include construction of a fair building and expansion of the museum. Though the museum's existing facilities are too small, presently funding is not available for expansion costs.

(Interviews with Hughie Schoff, City Councilman; Mat Morris, City Planner, July 13, 1979; John Buchan, Winnemucca Chamber of Commerce, July 7, 1979)

Funding has been arranged for the fair building which will include an exhibit hall to be used by the Tri-County Fair and other functions. Currently the National Guard Armory is used for this purpose. Both of these projects will be undertaken on private land.

Winnemucca is incorporated and has a population of 3,587.

HEALTH SERVICES

Lovelock

The Pershing County Hospital is in Lovelock, as are two medical doctors, a county-run ambulance service, a pharmacy and a mortuary service.

The hospital has 22 beds for acute-care patients with about a 10 percent occupancy rate during 1979. Also there are 25 beds for the nursing-home (mostly elderly and long-term patients) with about 85 percent occupancy during 1979. The hospital's physical layout is planned so that an addition, if necessary, could be accomplished easily when required. The hospital employs 45 people.

Two medical doctors have offices in Lovelock and one or the other is always on call at the hospital. A 24-hour hospital emergency service is available with an RN on duty. The hospital lacks the equipment and facilities of large city hospitals so many local people go to Reno (90 miles away) for their medical treatments.

Two dentists and an optometrist are in Lovelock two or three days a month.

A full-time public health nurse (a nurse practitioner) conducts health clinics such as pre-natal, well-baby, women's health and family planning. The aim of and the reason for the public health nurse is to keep people well, so much of the work is in educating people about healthful practices. The nurse lectures at the public schools and at public meetings, does vision and hearing screening, and dispenses printed material to the public. Some mental health counseling and help is given. About half of the county population are, during the course of a year, involved in at least one of the public health programs. The nurse goes to Imlay for regular activities. The public health program is funded by the state (60%) and the county (40%).

The Nevada Home Health in Lovelock provides home care for people unable to function without some help. Eligibility is figured on a sliding scale of income, except for Medicare patients who are all eligible. A Registered Nurse and several home aides provide skilled nursing care and also such services as baths, bed changing and other light household chores. The State and County provide some funds for those patients ineligible for Medicare.

Gerlach-Empire

Gerlach and Empire are in Washoe county about 100 miles from the county office in Reno. The Washoe County Public Health Office sends a public health nurse twice a month to conduct well-baby, geriatric, family-planning and immunization clinics and do home visits.

The Washoe County school nurses visit Gerlach and Empire schools periodically. Also, some medical doctors from the Reno area conduct periodic clinics in Gerlach.

Ambulance service is available in the Gerlach area. The Washoe County Health Department bought the ambulance and pays upkeep expenses such as insurance. The Washoe County Road Department helps with maintenance and other services, and the Truckee Meadows Fire Protection District trains the volunteer drivers and attendants in basic life support systems. There is no charge for the ambulance service, although donations are accepted.

The new ambulance (1980) is equipped with 4-wheel drive for use in most kinds of terrain.

Fernley has no hospital or medical services except for a medical doctor for four days of the week.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

The principal medical facility in the area is the Humboldt County General Hospital in Winnemucca. It has a 32-bed capacity. Ten nurses and 52 other persons are employed by the hospital. A doctor is on call 24 hours a day. When built in 1973, the hospital was designed to sustain a 60% to 70% increase in use. Presently, it is operating at approximately 65% of its capacity. The hospital has a lab, an X-ray unit, and licensed volunteer ambulance service. It is equipped to handle most major surgery and cardiac cases, the major exceptions being traumatic orthopedic and open heart surgery cases. Emergency patients that the hospital cannot handle are taken to Reno or Elko. There are six doctors in Winnemucca. Two of these have private practices while the other four are employed by Humboldt Health Care Medical Clinic, a hospital based clinic. A nursing home is also attached to the hospital.

The Public Health Nurse provides a wide variety of community health services through the Community Health Nursing Program. There is little or no charge for these services due to state and federal funding. Family Planning, Immunization, TB Chest Testing, and other clinics are held in Winnemucca. Clinics are also held occasionally in McDermitt. Patients are referred to clinics in Reno as well. A number of other health services are available on an individual basis. (Interview with Mrs. MacNelly, Public Health Nurse, July 16, 1979.)

Rural clinics provide numerous mental health conseling services, including marriage, family, group, and individual counseling.

Nevada Home Health Services, Inc., is a private nonprofit organization which provides skilled nursing service to shut-ins (Rural County Resources, Cooperative Extension Service, UNR, 1978).

There are three dentists in Winnemucca.

UTILITIES

Electricity and telephone service are available to the towns and most of the rural areas of the Sonoma-Gerlach Resource Area. Residents in most of the area, except for Gerlach, Empire and Lovelock, must drill wells for water and install septic tanks for wastewater disposal.

Southwest Gas supplies natural gas to Winnemucca, Lovelock, and an occasional customer between the two towns and a few places in Grass Valley.

Lovelock

The city has recently upgraded its sewer and water systems so both systems are capable of serving a population of 20,000. (Lovelock's present population is less than 2,000.) Sewer hookups are available only inside the city limits, but the water system serves the city and also the surrounding area--60 square miles altogether. The water system currently (November 1979) serves 512 single unit residences, 34 apartment buildings with two or more units, and 32 small businesses. The water comes from Wright, Pole and Horse Canyons in the Humboldt Range. Sources and water pipelines are in a mixture of public and private lands.

Gerlach and Empire

The Gerlach General Improvement District, managed by local people, has recently replaced most of the old water pipes (from the system built by the Central Pacific Railroad in 1909). More work and money are needed, however, to completely modernize the system. Much of the labor has been donated by users. The water comes from springs five to ten miles northwest of town.

The Improvement District has borrowed and repaid money from Washoe County and has also received some federal money. The next project is to install a sewer system to replace the individually-owned septic tanks. Washoe County Public Works Office has given technical advice and help with the Gerlach water and sewer projects.

Domestic water for Empire is pumped from wells on U.S. Gypsum land. Also a pipeline brings water from and across public lands southeast of Empire.

Golconda

A Southern Pacific Railroad-owned system furnishes domestic water from Pole Creek in the Sonoma Range. A sewer system has been planned but some residents object and the systems status is in limbo at the present time. Individual septic tanks are used now.

Fernley

The county municipal water system gets water from wells on its own land. The sewer is also county owned and operated.

Imlay

A Southern Pacific Railroad-owned system brings in water from the Humboldt Range for part of the town. The Railroad also owns a sewer system (no treatment) for part of town. The rest of the town has wells and septic tanks. The Southern Pacific is in the process of selling both these systems.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

The city's water supply system is owned and operated by the California-Pacific Utilities Company. Water is supplied from both surface and underground sources. All sources are capable of supplying a combined flow of approximately 7,045 gpm. Additional storage capacity will be needed between 1980 and 1990. The Humboldt County draft general plan estimates that output of the system could be increased five-fold with the addition of a new well and construction of two additional reservoirs.

Waste water facilities are owned and operated by the city. A new treatment plant was constructed in 1967. Treatment is provided by two aeration ponds followed by two stabilization ponds. The plant is currently running at one-half capacity.

EDUCATION

Lovelock-Pershing County

The Pershing county school system includes a junior-senior high school and a K-6 elementary school in Lovelock and also a small elementary school in Imlay for grades 1-6.

A bond issue for a new school was passed in 1979 but the new building will only be a replacement for an old, unsafe school.

The school superintendent estimated that the Lovelock schools could accept only about 100 more students before the absolute saturation point was reached. At present (February 1980) enrollment is 298 in grades 7-12 and 345 in K-6.

The Imlay school has 31 students and could accept up to 30 more.

About 25 students from Pershing County attend schools in Winnemucca through a cooperative agreement between Pershing and Humboldt Counties.

Gerlach-Empire

The Gerlach-Empire schools are part of the Washoe County system. The elementary school (K-5) is in Empire (about 70 students) and the secondary school (6-12) is in Gerlach (about 60 people). The schools could function well with increased numbers--elementary school could double and the secondary school quadruple in size.

Fernley

Elementary and secondary schools are on double sessions, but a new high school is planned and should be ready for fall 1981 occupancy.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

Costs of education are approximately \$2,075 per student in Humboldt County as opposed to \$1,816 per student for the state. Students may be bused across county lines for convenience through a tuition agreement among counties. However, any large population growth will require remodeling and additional teaching equipment. Following is a breakdown of enrollment by school and age.

PAA Table 41

Humboldt County School Age Breakdown
July 1979

Maximum School Capacity	Location	Grade	Present	
			Enrollment	
Albert Lowry High	Winnemucca	9-12	494	585
W. Junior High	Winnemucca	6-8	342	490
Winnemucca Grammar	Winnemucca	1-5	250	480
Sonoma Heights	Winnemucca	K-5	377	425
McDermitt Combined	McDermitt	K-12	230	542
Orovada	Orovada	1-8	46	90
Paradise	Paradise Valley	1-8	13	90
Denio	Denio	1-8	9	60
Kings River	Kings River	1-8	7	60
Leonard Creek	Leonard Creek Ranch	1-8	9	10
Jackson Mountain			4	

"Humboldt County School District Enrollment", 1979 and Winnemucca District SEP p. 67, Interview with Bob Scott, Superintendent of Schools.

The Winnemucca College Center in Winnemucca is an off-campus program of the Northern Nevada Community College. It is part of the Community College Division of the University of Nevada System. All classes are taught at the high school. There are 20 teachers and approximately 300 students. Dropout rate is about 12%. Permanent facilities are needed by the college but no funding is available at this time. Special programs include the Adult Basic Education and English as a Second Language Classes. Community College classes are also taught in McDermitt. (Interview with Lois Craver, Coordinator, 8-16-79.)

SOCIAL PROGRAMS AND WELFARE

Nevada State Welfare

Lovelock

The Pershing County Welfare Office administers the programs for food stamps, aid to dependent children (ADC) and the medical payments from the State for elderly and disabled persons. The program administration is an eligibility worker who determines applicants' eligibility for the various State of Nevada programs but does not do any counseling. He does, however, refer people in need of help to other social welfare or health agencies.

Much of the work involves requests for help from transients. Gasoline to get to another town is the only help that the welfare office can give to transients. Any further help would have to be approved by the County Commissioners.

In Pershing County the recipients of State Welfare aid are: 34 aged, 4 blind and 8 disabled under the Medicaid program; 6 under the Aid to Dependent Children program; and 5 households in the Food Stamp program.

A Social Security representative from the Reno Social Security Office visits Lovelock periodically to help with problems. In Pershing County there are 33 people receiving supplementary Social Security benefits (SSI), 266 people receiving Social Security retirement payments, and 138 getting widows', dependent children and disabled benefits.

The County Extension Agent has some kind of contact with almost all of the ranchers and farmers--and their families--in the County during a year. The Extension Service Office mails and gives out information on soils, weed control, fertilizers and other ranch and farm-related subjects. The Agent is available to answer questions, do soil samples, dispense advice and run the 4H program. The service is funded from federal, state and county levels and is coordinated by the University of Nevada at Reno.

The Senior Citizens' group in Lovelock is very active. They have the use of a building with a kitchen and serve hot meals at noon. They also carry hot meals to some people who cannot get out.

Fernley residents must travel to Yerington for county services and to Reno for state and federal government offices.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

The Nevada State Welfare and Food Stamp Offices in Winnemucca provide Aid to Dependent Children (A.D.C.) and Food Stamp assistance to Humboldt County residents. The Social Security Office in Reno is responsible for distribution of Social Security Income (S.S.I.) benefits, S.S.I. aid includes the Old Age Security (O.A.S.), Blind Assistance (B.A.) and Disability Assistance (D.A.) formerly administered by the state. The State Welfare Office still handles medical assistance payments to S.S.I. recipients as well as to A.D.C. clients.

As of June 30, 1978, there were 81 S.S.I. recipients in Humboldt County. These figures should be updated by about 10% to approximate the current number of beneficiaries. (Telephone conversation with Carl Stelzner, Assistant Manager, Social Security Office, Reno, July 20, 1979.)

There are 103 families receiving Food Stamps and 44 A.D.C. cases in Humboldt County. Fifty O.A.S., 3 B.A. and 18 D.A. cases, as well as all A.D.C. cases, receive medical assistance from the state. These figures are correct as of July 1, 1979. (Interview with Julie West, Social Worker, Nevada State Welfare Office, Winnemucca, July 17, 1979, and telephone conversation with Food Stamp Office, Winnemucca, July 18, 1979.)

The Nevada State Bureau of Vocational Rehabilitation in Winnemucca provides vocational counseling, training and placement aid to persons with physical or mental disabilities. (Rural County Resources, Cooperative Extension Service, University of Nevada at Reno, May 1978.)

A Senior Citizens Hospitality Center is located at Nixon Hall in Winnemucca. Approximately 100 persons a day are served a midday meal there through a state and federally funded program. Though there is space to accommodate a 45% increase in recipients, presently there is only funding available for 80 persons. Meals are served free of charge to those over 60. Those under this age limit are requested to make a donation if they are able to. Other services for senior citizens include locating housing for those who require it, and referrals to the Public Health Nurse and Mental Health Center. Senior citizens are also provided with opportunities to participate in arts, crafts, and games at the center. Transportation for shopping purposes is available as well. (Interview with Jane Jones, Acting Director, August 8, 1979.)

TRANSPORTATION AND COMMUNICATION

Roads

Interstate 80 is the principal and the best maintained road in the Sonoma-Gerlach Resource Area. I-80 goes through the center of Lovelock now, but the city bypass is under construction and should be complete later in 1980. I-80 and U.S. 95 run concurrently for about 80 miles through Pershing county. I-80 continues into Reno (about 40 miles from the southern end of the Sonoma-Gerlach Resource Area). U.S. 95 separates from I-80 near the Pershing county line and turns south.

To travel north from Lovelock, one uses State Highway 399 (S-399). This turns west and eventually joins with northbound S-447 which goes to Empire and Gerlach. To go southeast from the Lovelock area there is S-857 through the West Humboldt Range and into the Buena Vista, Pleasant and Grass Valley areas. Another state road S-400 leaves I-80 at Mill City and runs south through Buena Vista Valley. Less than 25 percent of S-399, S-857, and S-400 are paved and thus, maintained by the State Highway Department.

All other roads in Pershing County (and most of the state roads) are gravelled or are just dirt and are maintained by the County. According to the County Commissioners, the County is responsible for 2,500 miles of road, but a former county official said about 1200-1500 miles are actually maintained..

S-447, which connects with S-399 from Lovelock, runs north from I-80 through Empire and Gerlach and then northeast to Denio and into Oregon. S-81 runs northwest from Gerlach and into northern California.

Fernley's highway system includes I-80 connecting with Reno to the west and Lovelock to the east, S-447 to the north and Alternate 95 southeast to Fallon.

All the federal and state roads are maintained year-round.

The following two paragraphs are excerpted from the Paradise-Denio PAA:

Winnemucca is on Interstate 80, the main arterial route between Salt Lake City, Utah, and Sacramento, California. Work is currently in progress to bypass the downtown area. State Highway 95 connects Winnemucca with Oregon and Idaho through McDermitt. State Route 140 branches off 95 and runs through Denio and on to Oregon and the coast. State Route 49 is a two-lane, bladed, gravel road which connects Winnemucca with Gerlach. The road system forms a centralized network with Winnemucca as its focal point. The county maintains other paved and gravel roads.

BLM also maintains several improved dirt roads which are accessible by four-wheel drive vehicles. See the Visual Resource Management portion of the Recreation Section for the average number of vehicles per day utilizing the main roads in the planning area.

Railroads

The Western Pacific railroad crosses the northern portion of the Sonoma-Gerlach Resource Area, passing through Gerlach. Freight cars are picked up and dropped off in Winnemucca and in Gerlach.

The Southern Pacific railroad crosses the resource area on essentially the same route as I-80. The Southern Pacific picks up and drops off freight cars in Lovelock and in Winnemucca.

AMTRAK uses the Southern Pacific tracks for its daily east and west bound trains. AMTRAK stops in Winnemucca but not in Lovelock.

Fernley has no freight or passenger service.

Bus Lines

Two bus lines provide seven eastbound and seven westbound buses daily on I-80 through Lovelock and Winnemucca. Also two buses daily travel north to Boise from Winnemucca. Bus depots in Lovelock and Winnemucca are open from 7 AM to 10 PM. East-west busses stop in Fernley as well as the busses from southern Nevada and Fallon.

Air Service

The Pershing County Airport (Federal Aviation Authority [FAA] Class 4), about 10 miles southeast of Lovelock, will accept small jet planes. Upgrading of one or both of its runways would be necessary, according to the County Commissioners, if jets were to be landing regularly.

The airport is used mostly by private plane owners and by the weekday flights of the mail and bank (moneys and financial documents) planes between Reno and Wells, Nevada. The mail and bank planes do accept passengers but on a limited basis, as they have few seats.

The FAA maintains a 24-hour service at the airport and also keeps the official weather records for the area.

The County leases some public land for airport use and would probably want more public land if expansion of the airport were necessary.

An old airstrip is available in Gerlach for emergency landings, but it is not maintained.

Fernley has no air service.

The following paragraph is excerpted from the Paradise-Denio PAA:

There is a municipal airport in Winnemucca. Both planes and helicopters can be chartered or rented from Winnemucca Air Service or Sonoma Flying Service at the airport. No regular commercial flights are presently available, but the development of such a service in the near future is being seriously considered.

Newspapers

The Lovelock Review-Miner is published weekly in Lovelock. The semi-weekly Humboldt Sun, published in Winnemucca and the daily Nevada State Journal from Reno are also available in the area.

Fernley has a weekly advertising paper.

LAW ENFORCEMENT

Pershing County

The County Sheriff's Department has six officers, including the Sheriff who is now also the County Coroner (since a new State Law became effective in 1979).

The size of the County--6,000 square miles with more than 2,500 miles of roads--preclude any kind of regular patrolling. Administrative and court duties are necessary but time-consuming.

The Pershing County Commissioners refused to enter into a cooperative agreement with the BLM for law enforcement.

The population of the county is only about 4,000, but driving time is long to remote areas. One deputy said he used four hours--half his shift--to drive out to a mine operation, deliver a summons and drive back to the office.

A proposed development in Grass Valley (70 to 80 miles from Lovelock) was disapproved by the planning board and the County Commissioners, partly because of the difficulty in providing police protection and other services. The reopening of the tungsten mine north of Imlay and Mill City may require on-site deputies because of the almost 50 miles from Lovelock to the mine site. Approximately 200 people will be employed at the mine and most will probably live nearby.

One local law enforcement officer is anti-growth because additional problems come immediately with more people but the funding for additional officers is much later. Another officer is pro-growth because the local government needs the tax money.

Lovelock

The city has six officers, one a juvenile officer who also helps with the county's juvenile problems. The city shares the jail with the county and both use the same phone number and dispatcher.

Nevada Highway Patrol

Two patrolmen are stationed in Lovelock. They cover I-80 and also the state roads in the county.

Gerlach

A Washoe County deputy sheriff is stationed and lives in Gerlach. He is available for emergency call 24 hours a day, but if not available then someone from the Reno sheriff's office must drive to Gerlach. There is no search-and-rescue team in Gerlach.

An elected, part-time constable is available, if needed, to help the deputy. A part-time justice of the peace, also elected, holds court when necessary.

Fernley

Twenty-four-hour service is maintained in Fernley by the Lyon County Sheriff's Department.

The following is excerpted from the Paradise-Denio PAA:

Winnemucca

Winnemucca, a town of approximately 5,000 persons is the only town within the county served by a city police force. The city force consists of eleven uniformed officers, including a lieutenant and the police chief. The Winnemucca police will respond to calls for assistance from areas outside the city limits as a courtesy to the county sheriff's department. The county sheriff's department serves the rest of the county. Personnel strength is six officers including an undersheriff and a juvenile officer who is also a deputy sheriff. One deputy is assigned to McDermitt. Patrols do visit the rural areas within the county but only when officers are free from investigative duties. The overall population to law enforcement officer ratio within the county is 473 to 1, based on 1977 population figures. It is anticipated that the growth of Valmy will eventually require the assignment of one deputy to this community.

Search and rescue services in the county are provided by 10 volunteers with five four-wheel drive vehicles and one jeep. All the volunteers are trained in first aid, three are emergency medical trained. To date (August 1979) only two rescue calls have been received in 1979.

FIRE CONTROL (PUBLIC LAND RELATED)

Fire Control Organizations and Equipment

There are six organizations that may respond to wildland fires within the Sonoma-Gerlach Resource Area.

1. The Bureau of Land Management, Winnemucca District, has primary responsibility for wildland fire control on public lands within the 4.54-million-acre resource area. The district organization consists of two year-round employees and up to 23 temporary employees during the fire season. Seven engines, one tank truck, and three support vehicles are stationed in Winnemucca (Table 41). Two small crawler tractors are available from the district Division of Operations.

The BLM Battle Mountain District provides initial attack services on 481,000 acres in the Dixie, Jersey, Buffalo, and Pumpernickel Valleys which lie in the eastern portion of the Sonoma Planning Unit.

The Carson City District of BLM provides initial attack services on 877,000 acres in the western half of the Blue Wing Planning Unit, and on 239,000 acres in the Buffalo Hills Planning Unit.

The Susanville, California District of BLM also provides initial attack services on 364,000 acres of the Buffalo Hills Planning Unit.

2. The Winnemucca Rural Fire District has ten firemen and four pieces of equipment. The rural fire district includes 37,000 acres within the Sonoma Planning Unit.

The rural fire district and Winnemucca BLM have a cooperative annual operating plan^{1/}.

3. The Winnemucca Volunteer Fire Department has twenty members who operate three Class A structural fire engines. They have a mutual aid agreement with the rural fire district^{2/}.

^{1/} .37 Fire Section of Sonoma Planning Unit URA

^{2/} Personal communication, Walter Johnson, Chief, Winnemucca Volunteer Fire Department, July 1979

4. Pershing County and the City of Lovelock operate a combination city/county fire department. There are twenty-one firemen in Lovelock. They operate two tank trucks (2800 gallons and 4200 gallons), one 1000 GPM fire truck, one 750 GPM fire engine, and two 500 GPM fire engines. The Imlay station has thirteen firemen who operate an engine with a tank capacity of 1400 gallons of water.^{1/}
5. The Gerlach Volunteer Fire Department has 26 members who operate one engine. They receive wildland fire support from the Truckee Meadows Fire Protection District. The fire protection district also has an annual agreement and operating plan with the BLM Carson City District.^{2/}
6. The North Lyon County Fire District in Fernley also responds to fires within the resource area. They have 25 volunteers who are equipped with two engines, one mini-pumper, and a 4000 gallon tank truck.^{3/}

Specialized equipment, such as helicopters and air tankers, are on contract to other BLM districts during the fire season.

During the peak season of a normal fire year district forces will handle 80 percent of any fires requiring initial attack. An additional 10 percent will be handled by requesting specialized equipment and/or forces from other districts within the state. The remaining 10 percent will require assistance from the Poise Interagency Fire Center (BIFC). All requests for assistance from either BIFC or other districts are directed through the Nevada State Office of BLM.^{4/}

Fire History

Tables 42, 43 and 44 provide a summary of wildland fires by cause, land ownership, acreage, and suppression and resource damage costs^{5/}.

^{1/} Personal communication, Chief Joe Eyraud, Lovelock Fire Department, February 15, 1980

^{2/} Personal communication, Gene LeBlanc, Truckee Meadows Fire Protection District, February 15, 1980 and Steve Woodward, Nevada Division of Forestry, February 4, 1980

^{3/} Personal communication, Fire Chief Bill Southard, Yerington, Nevada, February 15, 1980

^{4/} BLM, Nevada Normal Year Fire Plan

^{5/} BLM, District Fire Records 1974-1978

Table 45 is a summary of total budgeted funds and actual costs of the district fire program.^{1/}

Additional information for the district fire program and fire history can be found in the .37 Fire Section of the Unit Resource Analysis for each planning unit. The .37-1 Fire overlay for each planning unit provides a summary, by location, of all reported wildland fires that occurred from 1974 through 1978.

Increasing activity in mineral and geothermal exploration and development and activities related to MX planning and development are expected to lead to an increase in wildland fire activity. Local interests expressed particular concern about the rail and highway transportation of hazardous materials (missile fuel) associated with the proposed MX system.^{2/}

^{1/} BLM, Winnemucca District Program and Cost Reports, 1978-1980

^{2/} Nevada Legislative Subcommittee on Fire Services, February 5, 1980; Nevada Futures Commission public meeting, February 11, 1980.

PAA Table 42

Winnemucca District

BLM Fire Equipment and Personnel

Quantity	EQUIPMENT		PERSONNEL Assigned Crew Members
	Type	Size	
1	4x4	Patrol, 100 gallons	2
2	4x4	Engine, 175 gallons	4
1	4x4	Engine, 500 gallons	3
2	4x4	Engine, 500 gallons (Unimogs)	4
1	4x4	Engine, 600 gallons	3
1	6x4	Water Tender, 2,400 gallons	2
1	4x2	1/2 ton truck	
1	4x2	1-1/2 ton truck	1
1	4x2	Van, 9 passenger	

Source: Winnemucca District Equipment Records

PAA Table 43

Fire Occurrence and Acres Burned

Sonoma-Gerlach Resource Area

Year	Fire Season	Public Lands		Other Ownership		Totals	
		Fires	Acres	Fires	Acres	Fires	Acres
1974	3/19-10/24	18	14,017	23	4,548	41	18,565
1975	3/16-10/24	17	320	22	198	39	518
1976	3/16-11/26	3	18	15	15	18	33
1977	3/7-11/16	6	300	1	50	7	350
1978	4/29-10/28	4	96	13	2,199	17	2,295
TOTAL		48	14,751	74	7,010	122	21,761

Source: Winnemucca District Fire Records

PAA Table 44

Fire Occurrence By Cause

Sonoma-Gerlach Resource Area

Fire Cause	1974	1975	1976	1977	1978	TOTAL	% of Total
Lightning	8	10	1	3	2	24	20
Camp Fire							
Smoking		1			2	3	2
Debris Burning	1	3	2		2	8	7
Incendiary							
Equipment Use				1	3	4	3
Railroad	14	11	7		2	34	28
Children							
Miscellaneous	18	14	8	3	6	49	40
Subtotal	41	39	18	7	17	122	100
False Alarm	10	10	12	13	10	55	
TOTAL	51	49	30	20	27	177	

Source: Winnemucca District Equipment Records

PAA Table 45

Estimated Fire Costs

Sonoma-Gerlach Resource Area

Year	<u>Public Lands</u>		<u>Other Ownership</u>	
	<u>Suppression Costs*</u>		<u>Resource Damage</u>	
	<u>Fires</u>	<u>False Alarm</u>		
1974	\$56,518	\$391	\$514,943	\$523,903
1975	21,589	622	10,291	914
1976	5,582	650	144	62
1977	1,600	650	6,200	1,250
1978	35,639	500	62,650	58,772
<u>\$120,928 + 2,813</u>				
<u>\$123,741 + \$594,858 =</u>				
<u>\$718,599 + \$584,901 =</u>				
TOTAL			\$1,303,500	

*BLM costs only

Source: Winnemucca District Fire Records

PAA TABLE 46

Planned and Actual Costs for the District Fire Program

	<u>Costs Planned</u>	<u>Actual Costs Expended</u>		
	<u>Fiscal Year Total</u>	<u>Personnel Costs</u> (salaries, benefits, overtime, hazard pay)	<u>Other Costs</u> (vehicle mileage, repairs, fuel, supplies, & aircraft)	<u>Total</u>
FY 1978				
10/01/77- 09/30/78				
Fire Management	\$32,300	\$22,945	\$1,220	\$24,165
Presuppression	76,000	39,981	10,898	50,879
Fire Fighting	-	65,702	19,245	84,947
TOTALS	\$108,300	\$128,628	\$31,363	\$159,991
FY 1979				
10/01/78-09/30/79				
Fire Management	\$38,800	\$20,297	\$7,478	\$27,775
Presuppression	82,933	60,287	4,370	64,657
Fire Fighting	-	59,764	6,925	66,689
TOTALS	\$121,733	\$140,348	\$18,773	\$159,121
FY 1980				
10/01/79-09/30/80				
Fire Management	\$39,100			
Presuppression	105,600			
Fire Fighting	-			
TOTALS	\$144,700			

Source: Winnemucca District Program and Cost Reports (ARFE 125)

Sources

1. Bureau of Land Management, Winnemucca District. .37 Fire Section of the Unit Resource Analysis for the Sonoma, Blue Wing and Buffalo Hills Planning Units. District Equipment Records. District Register of Current Cooperative Agreements.
2. Bureau of Land Management, Winnemucca District. .37 Fire Section of the Sonoma Planning Unit Unit Resource Analysis. District Register of Current Cooperative Agreements. Telephone communication with Neil Wright, Chief, Winnemucca Rural Fire District, July 1979.
3. Telephone communication with Walter Johnston, Chief, Winnemucca Volunteer Fire Department, July 1979.
4. Telephone communication with Chief Joe Eyraud, Lovelock Fire Department, February 15, 1980.
5. Telephone communication with Gene LeBlanc, Truckee Meadows Fire Protection District, February 15, 1980. Telephone communication with Steve Woodward, Nevada Division of Forestry, February 4, 1980.
6. Telephone communication with Fire Chief Bill Southard, Yerington, Nevada, February 15, 1980.
7. Bureau of Land Management, Nevada Normal Year Fire Plan.
8. Bureau of Land Management, Winnemucca District Fire Records, 1974-1978.
9. Bureau of Land Management, Winnemucca District Program and Cost Reports (ARFE 125), Fiscal Year 1978-1980.
10. Nevada Legislative Sub-Committee on Fire Services Legislative Counsel Bureau, Carson City, public hearing, Winnemucca, Nevada, February 5, 1980. Nevada Futures Commission, Carson City, public meeting, Winnemucca, Nevada, February 11, 1980.

BUREAU AGREEMENTS

This section includes a listing of cooperative agreements which presently affect the Winnemucca District. These agreements have been entered into with individuals and agencies at the local, state, and national level. For the details of each of these agreements see the District record on cooperative agreements (1780). For those groups, agencies, or individuals having a significant impact on the District's programs or which are significantly impacted by the District's programs, a short analysis of the cooperative agreement is included. All others are merely listed.

U.S.D.A. Soil Conservation Service (SCS) - The SCS provides soils information and coordinates ranch management plans with BLM allotment management plans. It provides guidance to farmers and ranchers for private land which sometimes is associated with public land use. Also, SCS Assists soil conservation districts and other groups in land use planning. The BLM cooperates, through agreement, with planning and giving technical advice.

U.S. Fish and Wildlife Service - By agreement, this agency performs BLM authorized predator control on public lands. In addition the Fish and Wildlife Services acts as consultant to the BLM in matters concerning fish and wildlife resources and related habitat that may be affected by the geothermal leasing program. The Range Improvement Act of 1978 also mandates that BLM consult with the Fish and Wildlife Service in matters concerning the removal of excess wild horses and burros from public lands.

U.S.D.I. Bureau of Reclamation - Under this agreement the BLM administers grazing on all reclamation lands not within the boundaries of authorized or constructed reclamation projects. The plans and programs of both agencies are to be coordinated to the maximum feasible extent.

U.S.D.I. Heritage Conservation and Recreation Service (National Park Service) - The National Park Service provides information on sites on BLM land which may qualify as natural landmarks, conducts theme studies on these areas, coordinates with BLM on the management of these areas, and with the BLM's approval submits qualified sites to the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings and Monuments for consideration as national natural landmarks.

Nevada Department of Wildlife - Since wildlife is state property, this agency is responsible for animal management while BLM is responsible for habitat management on public lands. Close coordination is carried on, by agreement, for classification, disposal proposals, access, and range developments concerning fencing, revegetation, and water. Closer cooperation is necessary in order to improve wildlife numbers and habitat.

Nevada Department of Conservation and Natural Resources - This organization includes the State Division of Water Resources, the Division of State Parks, and the State Division of Forestry. These agencies relate to Bureau programs through water use regulations, state recreation planning, public lands classifications, woodland disposals, and cooperation with fire suppression. State control of water indirectly controls BLM private land disposal and BLM water developments and controls. The state forester enforces state laws concerning Christmas trees in cooperation with the Bureau. Also, the state forester provides equipment and personnel for fire suppression. The Bureau cooperates with the State Parks Division with requested disposals and protective classifications.

State of Nevada - Nevada State legislation affecting public lands are (BLM District Office, central files, 1780):

AB 466 - Establishes a state multiple-use advisory board and separates conservation and natural resources divisions.

SCR 35 - Establishes a committee to study federal public land use in order to provide benefits to Nevada citizens.

AB 333 - Requires branding and marking of livestock on open range.

SB 130 - Designates regional planning districts in the state.

404.434 - Establishes framework for cooperative road projects with federal agencies.

Humboldt County - Humboldt County is responsible to its residents and the state for planning and zoning of all lands within the county. Thus, Bureau disposal programs classifications, construction programs, and developments directly affect county governments. Also, county planning and zoning directly affect Bureau operations. Bureau employees generally work with county planning boards and commissioners when planning Bureau programs. See the land use planning and zoning by local government checklist (Table 29).

Many of the agreements listed are outdated. All the agreements should be reviewed and either updated or cancelled. However, as long as they remain in effect all the decisions we make are constrained by them.

Agreements concerning the fire program are discussed in detail in the fire section of this document.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	HOLE OF BLM	ROLE OF OTHER AGENCIES
Nevada State Highway Department	Cooperative Agreement February 25, 1969	Material sites	1. Determine if unauthorized dumping is occurring. 2. Review need for particular sites. 3. Will consider requests for dumping new material sites. 4. Make technical exam of site and write stipulations.	1. Review need of particular sites. 2. Relinquish unneeded pits. 3. Abate unauthorized

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
State of Nevada Department of Highways	Joint Memorandum August 14, 1972	Highways and roads	1. Hold annual meeting. 2. Define BLM organizational lines and coordinate work.	1. Define state highway organizational lines and coordinate work.
			Minimize duplication of work.	

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada Highway Department	Joint Memorandum February 15, 1978	Material Sites	1. Issue exploration permits. 2. Assign District serial numbers to permit applications. 3. Issue free use permits for material needed for highway construction and any special stipulations needed. 4. Issue material site grants. 5. Do environmental analysis.	1. Reconnaissance of new material sites. 2. County, planning and zoning needs. 3. Bonding of contractors. 4. Submit mining plan.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada Division of Forestry U. S. Forest Service	Nevada Interagency Air Operations Plan 4-30-70 yearly review	Fire	Same.	Coordinating aerial support and provide effective air support facilities.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
State of Nevada	Fire Control Cooperative Agreement 9-30-70 subject to yearly review	Fire	Suppression of fires on state lands and BLM lands.	Suppression of fires on BLM lands and state lands.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
State of Nevada Planning Coordinator	Memorandum of Understanding July 16, 1973	Planning All	Consult with the state clearinghouse to assure that Bureau plans, programs and projects are consistent or compatible with local, regional and state development plans.	Coordinate the process of review and consultation with state and local officials and planning agencies. Notify the Bureau of state or other plans and programs which might impact lands administered by the Bureau.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Humboldt County N-020-2	Cattle Guard Agreement 8-3-77 signed		<u>BLM's Responsibility</u> (a) The BLM will furnish the cattleguard grill, end wings, and precut treated timber bases. The 8 foot by 24 foot, H-20 load class, with cleanout, will be considered standard unless it is mutually agreed traffic and road widths require more or less. (b) The BLM will load out materials listed in (a) above onto Humboldt County vehicles, at the BIM Wareyard, Winnemucca. (c) The BLM will furnish replacement materials, as mutually determined, for necessary maintenance. Same as Humboldt County agreement. Road Maintenance responsibilities spelled out as shown on transportation plan (operations).	<u>Humboldt County's Responsibility</u> (a) Furnish transportation, equipment and labor necessary to install the cattleguards. (b) Perform normal cattle-guard maintenance, cleanout, and replace damaged or wornout material when furnished by BIM.
Pershing County N-020-34	Cattleguard Agreement 3-2-78 signed			
Pershing County NV-020-1	Road Maintenance Agreement 1-27-76 signed			

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada Fish & Game Commission and University of Nevada	Memorandum of Understanding February 27, 1964 Supplement #1 and #2	Wildlife	1. Cooperate in selecting study areas and in determining studies that will be made and procedures that will be followed. 2. Cooperate in building and maintaining enclosures. 3. Make inspections, collect data, evaluate results. 4. Cooperate in formulating management plans for key wildlife use areas. 5. Provide the experiment station with annual grants to help pay expenses.	NDFG 1. Cooperate in selecting study areas and in determining studies that will be made and procedures that will be followed. 2. Cooperate in building and maintaining enclosures. 3. Make inspections, collect data, evaluate results. 4. Conduct wildlife population studies to determine numbers. 5. Collect game animals. 6. Provide the experiment station with annual grants to help pay expenses. Experiment Station 1. Execution of project work plan. 2. Cooperate in selecting study areas and in determining studies that will be made and procedures that will be followed. 3. Provide necessary personnel and equipment necessary to carry out work plan. 4. Make inspections, collect data, evaluate results.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
				Experiment Station - Continued 5. Prepare and submit: a. Annual progress report. b. Final report at close of project. c. Other reports as agreed upon.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada State Department of Agriculture	Disposition of wild horses and burros gathered from public ranges within the State of Nevada March 24, 1978	Wild Horses and Burros	Responsible for identification, management and protection of "wild free-roaming horses and burros", as defined in 16 U.S.C. 1331, et seq.	Responsible for determining diseased animals and owner- ship of domesticated animals under state law pursuant to Title 50 of the Nevada Revised Statutes and State Regulation #58.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada Fish and Game Commission	Memorandum of Understanding and Agreement, December 2, 1948	Water Developments	Grants the state permission to develop, install and maintain water developments for small game in furtherance of the state's game restoration program.	Notify BLM of the location and nature of each proposed unit 15 days prior to commencement of development or installation.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada Department of Fish and Game	Memorandum of Understanding 12-30-70 Yearly Review Supplements 1-6	Wildlife	1. To make available to NDFG such facilities, equipment and assistance as can be utilized in wildlife work. 2. To give full consideration to wildlife in resource management. 3. To permit structures as needed to facilitate wildlife management. 4. To assist in the enforcement of wildlife laws. 5. To assist in wildlife population surveys. 6. To consult NDFG when changing water courses or making range improvements. 7. To provide NDFG advance notice of proposed classification of lands for disposal, withdrawal or exchange. 8. To cooperate with NDFG in the development or construction of wildlife habitat improvements or access to hunting and fishing areas. 9. To provide NDFG with reports and correspondence pertinent to wildlife management on public lands.	1. To make available to BLM such facilities, equipment and assistance as can be utilized in wildlife work. 2. To manage wildlife so that public land habitat will be maintained in a good state of productivity. 3. To advise BLM of plans to introduce or translocate new, rare or endangered wildlife on public lands. 4. To create no permanent wildlife preserves, refuges or sanctuaries on public lands without notifying BLM. 5. To erect no structures and perform no construction on public lands without the consent of BLM. 6. To enter into agreement relative to the disposition of grazing privileges attached to base properties which the NDFG intends to purchase prior to transfer of title of the property to NDFG. 7. To provide BLM with reports and correspondence pertinent to wildlife management on public lands.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS
BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada State Museum	Memorandum of Understanding February 4, 1965	Antiquities	1. Furnish land status upon request. 2. Advise museum of planned projects and developments that would disturb land surfaces. 3. Advise museum of dispositions of lands. 4. Recommend priorities for investigation areas. 5. Act in an advisory capacity to the museum. 6. Include prospective sites in recreation inventory.	1. Furnish maps of areas known to have archeological values. 2. Notify BLM when antiquities permits are obtained. 3. Notify BLM of intensive exploration or excavation. 4. Report prospective archeological sites. 5. Promptly report on any tracts inventoried. 6. Furnish cost estimates for systematic investigation. 7. Report results of excavations. 8. Assist in preparation of interpretive materials and displays.

FORMAL AND INFORMAL COOPERATIVE AGREEMENTS BETWEEN THE BLM AND FEDERAL, STATE AND LOCAL AGENCIES

NAME OF AGENCY	TITLE OF AGREEMENT	RESOURCES	ROLE OF BLM	ROLE OF OTHER AGENCIES
Nevada State Highway Department	Memorandum of Understanding May 5, 1965	1. Safety and traffic control signs. 2. Location access and other matters.	1. Install signs at road and trail junctions and other points of interest. 2. Accompany engineer on reconnaissance study. 3. Provide comments on resource impacts. 4. Acknowledge receipt of notice of public hearing.	1. Install all necessary traffic control and warning signs and directional signs on state highways to towns and communities. 2. Notify BIM of any planned route location work. 3. Request comments regarding resource impacts. 4. Notify BIM of location and time of public hearings. 5. Give BIM a full description of route selected. 6. Advise BIM when route selected is approved.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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DATE _____

REGISTER OF CURRENT COOPERATIVE AGREEMENTS

NUMBER	SUBJECT/ FUNCTION	TITLE	EFFECTIVE DATE	TERMINATION DATE	AGENCIES INVOLVED
		Agreement for Administration of Resources between the Winnemucca and Carson City Districts	9/3/76		BLM - Winnemucca and Carson City
		Agreement for Administration of Resources between the	8/16/76		BLM - Winnemucca and Battle Mountain
		Memo of Understanding between State Director Nevada and State Director California for Grazing Administration across the California/Nevada State Lines	2/28/64 11/6/68 1/25/72		BLM - California and Nevada
		Agreement for Administration of Grazing Privileges between the Susanville and Winnemucca Districts	3/27/67		BLM - Winnemucca and Susanville
		Fire Protection Agreement between Winnemucca and Battle Mountain Districts	5/1/64		BLM - Winnemucca and Battle Mountain
		Fire Protection Agreement between Winnemucca and Susanville Districts	5/1/73		BLM - Winnemucca and Susanville
		Letter Agreement for Enhancement of Lahontan Cutthroat Spawning-Mahogany Creek	8/30/73		BLM - Fish & Wildlife Service
		Cooperative Fire Fighting Agreement	8/10/40	3/31/41	USDI Grazing Service and Fish & Wildlife Service
		Soil Conservation Agreement between Vya Soil Cons. Dist. Bureau of Sport Fisheries and BLM	6/14/60		Vya SCS - Bureau of Sport Fisheries and BLM

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REGISTER OF CURRENT COOPERATIVE AGREEMENTS

NUMBER	SUBJECT/ FUNCTION	TITLE	EFFECTIVE DATE	TERMINATION DATE	AGENCIES INVOLVED
		Memorandum of Understanding between the Fish & Wildlife Service and the Bureau of Land Management	10/16/46		BLM - Fish & Wildlife Service
		Memorandum of Understanding between the USGS, USDI, and BLM on Charter for the USGS-BLM coal subcommittees of the USGS-BLM Coal Committee	11/1976		USGS - BLM
		Memo of Understanding between the BLM, USDI, and USGS, USDI for Outer Continental Shelf Oil and Gas Lease Sales	11/1976		USGS - BLM
		Memo of Understanding between BLM, USDI, and USGS, USDI on Onshore Mineral Lease Operations	11/1976		USGS - BLM
		Memorandum of Understanding for the Geothermal Program	6/1976		USGS - BLM - U.S. Fish & Wildlife Service
		Cooperative Procedures for Coordinating Preparation of EAR's and EIS's	8/6/75		BLM and USGS
		Nevada Interagency Air Operations Plan	11/1967		USDI - BLM - Div. of Forestry, Dept. of Conservation and Natural Resources, State of Nevada and USDA-Forest Service
		Cooperative Fire Agreement	7/3/78		BLM - USDA - Forest Service
		Allotment Management Planning	1971		BLM and Soil Conservation Service

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NUMBER	SUBJECT/ FUNCTION	TITLE	EFFECTIVE DATE	TERMINATION DATE	AGENCIES INVOLVED
		Memorandum of Understanding on Interagency Coordination in nonemergency critical habitat determinations pursuant to Section 7 of the Endangered Species Act of 1973	3-1976		BLM - Bureau of Reclamation and FWS
		Memorandum of Agreement between the Bureau of Reclamation and the Bureau of Land Management	3/8/72		Bureau of Reclamation and BLM
		Memorandum of Agreement between the Secretaries of the Army and the Interior relative to management of land and water resources at existing or proposed projects of the Corps of Engineers located within or partly within areas of lands under the jurisdiction of the BLM	2/1973		USDI - BLM - Secretaries of the Army
		Outdoor Area Lighting Service	8/7/69		California - Pacific U. and BLM - Winnemucca District
		Water Rights and permits required prior to furnishing technical assistance in the installation of water management facilities	6/1962		Ag. Ext. Service, UNR State Dept. of Fish & Game, State Soil Conservation Comm., USDA - Soil Conserv. Service, USDI - BLM
		Memo of Understanding between BLM - USDI and USDA - Soil Conservation Service	1/1978		USDI - BLM - USDA - SCS
		Fire Operating Plan Agreement	2/26/79		BLM-N-020 - Vale District
		Soil Survey Relating to ES's	10/1/78 9/30/79		USDI, BLM - USDA - SCS

PROBLEMS AND ISSUES SUMMARY

Economic

Lands

1. Release of Public Land for Agricultural Development

Development of additional agricultural acreage through the disposal of public land would add to the economy of the resource area. Additional development could also reduce or offset the negative economic impacts of any adjustments in grazing preference by providing an attractive alternative means of livelihood to ranchers with currently marginal operations who may no longer be able to support their ranches as cattle operations but who may be interested in converting to agriculture as their major income source.

Currently the development of additional agricultural land is restricted by the classification of many of the valleys as designated basins by the Nevada state engineer. Additional studies to determine the amount of water recoverable on an annual basis are needed.

2. Checkerboard Land Ownership Pattern

This land ownership pattern results in inefficient management and complaints from private landowners. Trespass problems are difficult to identify. Fencing of private land is impractical, consequently exchange of use agreements are necessary. Access problems make construction of range improvements difficult. Complaints from private landowners about wild horses within the checkerboard land pattern are common.

Minerals

1. Impacts of Growth in Mining Activity

Mine openings close to some of the small communities in the resource area can pressure the capacity of limited community services (e.g. schools, water, waste disposal). The temporary nature of many mining activities can have a community overextended in terms of the services it supports after the mineral activity has ended.

2. Impact of Mineral Withdrawals

The amount of area to be withdrawn from mineral entry through wilderness exclosures is unknown at the present. The potential for economic impacts exists, generally in terms of future economic growth in this sector, if mineralized areas are closed to prospecting and mining.

Forest Products

1. Forest products currently have little economic impact on the resource area. As fuel prices increase and the trend towards installation of wood-burning stoves continues the demand for fuel wood will increase and BLM managed forest products may become of greater economic importance, particularly on the scale of the individual person.

Range

1. Insufficient Forage for the Competing Demands of Wildlife, Wild Horses and Burros, Livestock and Watershed Protection

If current trends continue, primary economic impacts will be felt in the agricultural, wildlife, and recreation sectors.

Insufficient forage means livestock, wildlife and wild horse numbers will be reduced resulting in direct income losses to the agricultural sector, and the trade and service sectors which cater to hunters and nonconsumptive wildlife users. Insufficient forage also causes overgrazing which reduces vegetative cover and results in accelerated erosion. Accelerated erosion reduces aquatic habitat quality causing fish populations to decline and further impacting the trade and service sectors which also cater to the anglers.

2. Cost of Federal AUMs Does Not Reflect Fair Market Value

The BLM was instructed by the Bureau of the Budget in 1954 to charge full market value for products, including forage, derived from federal lands. Low grazing fees for the past forty years are responsible for the grazing permit itself assuming a market value. Because grazing permits are associated with the base property of ranches with cattle grazing federal land, the result has been that the market price of the ranch or its capitalized value which enables the rancher to borrow money includes the market value of the associated federal AUMs. At present the Bureau of the Budget's directive has been restrained by political delays but should these restraints be released and the price of federal AUMs align more closely with private AUMs, the value of ranches will decline and the ability of ranchers to borrow capital will be diminished. The overall impact of increasing grazing fees to reflect fair market value will be a decrease in ranch income.

3. Wild Horses and Burros are Competing for Public Land Forage

This problem was addressed in #1 but is summarized here: excessive numbers of wild horses and burros are competing with wildlife and livestock for limited forage resources. The

overgrazing resulting from this competition damages watershed and wildlife resources as well as the range resource. Any reduction in wildlife, fishery or livestock numbers will reduce income to the county. Wild horses and burros have little economic value themselves; their major value is a cultural and historic one. Management of wild horses and burros was greatly restricted by PL 92-195. The current roundup process resulting from this law is expensive and has not kept pace with the annual recruitment rate.

Watershed

1. Federal Control of Water on Public Lands

The current practice of filing for water on public lands by the BLM is designed to enable the BLM to manage the public lands for the purposes mandated to it by various acts of the federal government. The economic impact of this process is difficult to determine. State law requires that privately controlled water be put to beneficial use and except for domestic purposes, this would imply that at least some economic benefits are being derived from private diversions. BLM water rights' applications, in contrast, are generally for the purpose of maintaining fish and wildlife populations ^{1/}, ensuring that sufficient water is available for livestock grazed on public land and for other uses of public lands that require water. Definite economic benefits result from the purposes for which the BLM is reserving water. These purposes are generally not those for which private appropriators would reserve water and it is unclear whether the benefits from private appropriation would exceed the decrease in benefits from BLM filings if the water on public land were entirely under private control.

2. Reduction in Vegetation Cover Resulting From Overgrazing

The impact of reduced vegetative cover on fisheries habitat has been discussed in Range #1. Reduced vegetative cover also results in more frequent and severe flooding, the economic impacts of which are self-evident. Less obvious is the impact on the sand dunes along Highway 95. Reduced vegetative cover has resulted in the blockage of the highway by windblown sand, thus involving costly removal operations.

Wilderness

1. Wilderness Designation Prevents Mineral and Reduces Recreational Access

The designation of an area as wilderness will halt further prospecting and potential mining activity. This condition may

^{1/} The federal government is also subject to the rule of beneficial use and it is not yet clear whether water used for the purpose of maintaining fish and wildlife populations constitutes beneficial use.

reduce future economic growth of the region's mining sector if potentially valuable mineral resources lie within the wilderness area.

Wilderness designation has generally not resulted in reduced visitor usage, however the type of use has changed. At Blue Lakes, for example, vehicle closure resulted in a change from overnight camping to day use. Wilderness designation makes livestock and trapline management more difficult, and eliminates ORV use, but the overall economic impact, except where mining potential exists, is probably not significant.

Other

1. Lack of Education, Knowledge and General Indifference to Federal Regulations

Various forms of trespass, an outgrowth of this problem, boost administration costs due to the necessity for use supervision, case processing and trespass actions.

2. Access to Public Lands

Restriction of access to public lands in areas that do not have wilderness characteristics may have a negative economic impact. Ranchers, miners, trappers, hunters, fishermen, ORV users, and other recreation users are dependent on access to public lands for a large percentage of their activities. Restrictions on access, particularly vehicle closure, will probably reduce many of these activities resulting in reduced county income.

3. Conflicts between Cultural Values and Resource Use and Development

The protection of cultural resources and mitigation of impacts is often costly. If resource development is restricted by the need to protect cultural resources, the economic impact can be significant. As an example, the need to protect cultural resources in the Black Rock Desert may add significantly to the cost of developing geothermal resources in the area.

PROBLEMS AND ISSUES

Social

The following is a summary of those problems and issues which have been identified in this document as being the major concerns of the local populace in regard to the management of the public lands in the Sonoma-Gerlach Resource Area.

Lands

1. Lack of local control over the public lands is a major irritant in Pershing County. Residents would prefer state management to federal, but if not that then at least more local BLM autonomy.
2. The Sagebrush Rebellion and its accompanying implications for changes in land uses and abuses is often discussed. Proponents are vehement in their desire for state ownership of the public lands, but some say an equal or larger number of residents oppose the Rebellion and keep quiet to avoid arguments.
3. Lovelock people are concerned about the availability of public land for expansion of the town and its services. Residential and industrial uses were mentioned. Some want to be able to buy one- to five-acre building sites.

Minerals

1. People fear wilderness and other environmental concerns will stop prospecting and mining opportunities.
2. Geothermal energy development attracts favorable responses --except for a few ranchers who don't want to see any visible reminders such as towers or power lines.
3. Some people -- ranchers and townspeople -- complained about scars and other leftovers from the mining and milling industry.

Range Management

1. Ranchers want more control over their allotments -- to build dams and water troughs, etc.
2. Ranchers are deeply concerned about grazing cuts recommended in the Paradise-Denio Planning Area and the rumors about possible cuts in the Sonoma-Gerlach Planning Area.

3. Ranchers disagree with (a) ear-tagging, (b) Bureau-imposed common on/off dates and (c) BLM filing for water rights.
4. Most ranchers approve of their Allotment Management Plans.
5. Some ranchers want more communication with the BLM -- on a one-to-one basis.

Wild Horses

1. Local residents see wild horses as threats to the cattle industry and to the local economy, as opposed to many people outside Nevada who see the horses as romantic and also as threatened with extinction if not protected.
2. Wild horse protection groups differ in their policies but, in the aggregate, are very strong politically.
3. Horse protection groups generally oppose fenced-off areas for the horses.
4. The failure of the BLM to manage the wild horses in a manner that keeps the horse population at a lower figure was given as one of the reasons for many Nevadans favoring the Sagebrush Rebellion.

Water Resources

1. Air quality (lack of pollution) is important to local residents.
2. Most people interviewed object to the BLM's water rights' filings, but no one knew why or where the actual filings were accomplished.

Wildlife

1. Wildlife means hunting and fishing to most interviewees.
2. The Humboldt Sink is important as a stopover point for migratory birds and a home for other forms of wildlife.
3. The competition for riparian areas (between cattle and wildlife) sets up a difficult choice for local residents. They want both livestock and good fishing.

4. Hunting and trapping are very important in the lives of many local residents.
5. Some local residents say wild horses take forage and water from wildlife -- another reason for ill feeling toward the BLM.

Recreation

1. Recreation means different things to different people. Urban and rural people, for instance, want different forms of recreation.
2. Recreation means hunting, fishing and ORV use to most local residents.
3. A possibility of a golf course near Lovelock is the only need seen for public land for recreation purposes.
4. Several local people talked about ORV use -- how necessary it is for attracting recreation-oriented tourists.

Cultural Resources

1. Area people are interested in local history and receptive to learning more.
2. Local residents object to artifacts being sent out of the area.
3. Arrowhead collecting is popular and is not seen as a crime by many people, even though against the law.

Wilderness

1. Most area residents are anti-wilderness -- because of the bans on vehicles and mining in wilderness areas.
2. The push for wilderness areas comes from outside the Sonoma-Gerlach Resource Area -- from city residents who value the chance for solitude and quiet.

General

1. Residents value their isolation and most do not want developments.
2. Almost everyone favors some sort of local control for public lands--as opposed to control from Washington D.C.

3. Area residents favor one-to-one contact with BLM.
4. People know very few facts about the BLM and the reasons for its actions. More and better communication is needed.
5. Some people are against the Sagebrush Rebellion -- but they are not advertising their opinions.
6. Many people in the resource area are not antagonistic toward the BLM. They may not always approve of the Bureau's actions but they understand the constraints under which the BLM operates and sympathize with its problems. Some interviewees approve of the Bureau and what it is attempting to accomplish.

Social Analysis Interviewees

Material for the social analysis was gathered from various publications, newspapers, observations at public meetings, and from interviews -- both personal and telephone.

Below is a list of those interviewed, identified by occupation or position.

Pershing County and Lovelock:

County Commissioners	Mayor
County Recorder	Four city employees
County Attorney	One policeman
A deputy sheriff	

Other government employees in Lovelock:

Soil Conservation Service representative
County extension agent
Welfare eligibility worker
Public health nurse
Four clerks in the various offices.

Other people in Pershing County - Lovelock:

Hospital superintendent	Chamber of Commerce secretary
School superintendent	Newspaper publishers
One realtor	Six ranchers
Several unidentified persons in Lovelock	
Feed-lot operator and industrial developer	

Gerlach-Empire area

Postmistress	One long-time resident
High school principal	U.S. Gypsum Personnel Manager
Local businessman	Two unidentified persons

Washoe County: (for Gerlach-Empire services)

A deputy sheriff	A public health nurse
A welfare department supervisor	

Fernley area:

A realtor	A housewife
Town Board President	A Wadsworth resident

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